



WESTMINSTER

Staff Report

TO: The Mayor and Members of the City Council

DATE: September 9, 2014

SUBJECT: Study Session Agenda for September 15, 2014

PREPARED BY: J. Brent McFall, City Manager

Please Note: Study Sessions and Post City Council meetings are open to the public, and individuals are welcome to attend and observe. However, these meetings are not intended to be interactive with the audience, as this time is set aside for City Council to receive information, make inquiries, and provide Staff with policy direction.

Looking ahead to next Monday night's Study Session, the following schedule has been prepared:

A light dinner will be served in the Council Family Room 6:00 P.M.

CITY COUNCIL REPORTS

1. Report from Mayor (5 minutes)
2. Reports from City Councillors (10 minutes)

PRESENTATIONS

6:30 P.M.

1. Adams County District 50 Request for Support of Ballot Measure (*verbal*)
2. Adams County District 12 Request for Support of Ballot Measure (*verbal*)
3. Inclusivity Task Force
4. Westminster Downtown Specific Plan

EXECUTIVE SESSION

1. Discuss strategy and progress on negotiations related to the Westminster Urban Center Redevelopment and the possible sale, acquisition, trade or exchange of property interests, including future leases, and provide instructions to the Authority's negotiators as authorized by CRS 24-6-402 (4)(a) and 24-6-402 (4)(e) (*verbal*)

INFORMATION ONLY ITEMS

None at this time.

Additional items may come up between now and Monday night. City Council will be apprised of any changes to the Study Session meeting schedule.

Respectfully submitted,

J. Brent McFall
City Manager

NOTE: Persons needing an accommodation must notify the City Manager's Office no later than noon the Thursday prior to the scheduled Study Session to allow adequate time to make arrangements. You can call [303-658-2161](tel:303-658-2161) /TTY 711 or State Relay) or write to mbarajas@cityofwestminster.us to make a reasonable accommodation request.



WESTMINSTER

Staff Report

City Council Study Session Meeting
September 15, 2014



SUBJECT: Inclusivity Task Force

PREPARED BY: Debbie Mitchell, Director of General Services
Dee Martin, Workforce Planning and Compensation Manager
Marina Miller, Volunteer Coordinator

Recommended City Council Action

Provide direction to staff on the formation of a task force that will provide recommendations for roles and responsibilities of a Westminster Inclusivity Board or Commission.

Summary Statement

Many Front Range cities have established diversity councils or human services commissions. The charge of each citizen group is varied as is the structure and responsibilities of the boards. Council has expressed interest in creating an Inclusivity Board or Commission. City Council direction and input is requested regarding the selection of membership for a task force which will work on developing recommendations for Council about the makeup, mission and vision of a Westminster Inclusivity Board or Commission.

Expenditure Required: TBD

Source of Funds: TBD

Policy Issue

How should the City proceed in structuring an Inclusivity Board or Commission?

Alternatives

1. City Council could recommend and appoint citizens to the task force without advertising membership.
2. City Council could direct staff to advertise and recruit volunteers to serve on the task force from the community along with members from Westminster Boards, Commissions and the Youth Advisory Panel and then deliver a list of interested citizens for selection and appointment by Council.
3. City Council could recruit for and appoint members to a Westminster Inclusivity Board or Commission without input from an initial task force and request the new board or commission to recommend its own mission and vision to Council.

Background Information

City Council requested the formation of a small task force to make recommendations on the objectives, scope of responsibility, structure and composition of a Westminster Inclusivity Board or Commission. Council may choose to direct staff to solicit members for a task force of five to ten citizens from Westminster's Boards, Commissions, Youth Advisory Panel and other groups. If there is Council direction, Staff will return to Council with a list of interested citizens for selection and appointment by Council. Once established, the citizen task force, along with a staff liaison, would meet for five to six months and return to Council with a recommendation on the establishment of a Westminster Inclusivity Board or Commission.

Previously, Staff investigated a variety of local approaches related to citizen involvement in council authorized groups related to diversity. Most commissions investigated have advisory responsibility. Many were charged with convening the community, researching topics, doing needs assessments and reporting back to City Council. In Denver, the commissions are also charged with convening community groups to encourage collaboration between non-profits, for profit and governmental agencies already mobilized in the area of need. Whatever the mission of the group, success hinges on clear focus, charge and direction in the formation of the group. The composition of the group is also critical in determining success. A small community task force can research and make recommendations to Council about the creation of an Inclusivity Board or Commission.

The investigation of the creation of a diversity-focused citizen group supports the following strategic plan goals of City Council as it encourages increased community involvement from diverse sets of individuals in Westminster: Visionary Leadership & Effective Governance, Vibrant & Inclusive Neighborhoods, Comprehensive Community Engagement, Proactive Regional Collaboration, and Excellence in City Services. This increased participation and discourse would lead to strategies and services more closely aligned to community needs across the whole population. A group of this sort would also serve as a vehicle for engaging a larger, more diverse group of citizens in activities focused on building a strong, supportive community.

Respectfully submitted,

J. Brent McFall
City Manager



WESTMINSTER

Staff Report

City Council Study Session Meeting
September 15, 2014



SUBJECT: Westminster Downtown Specific Plan

PREPARED BY: Mac Cummins, AICP, Planning Manager
Sarah Nurmela, AICP, Senior Urban Designer

Recommended City Council Action

Staff will review the scope, analysis, and content of the Westminster Downtown Specific Plan document. Staff is requesting Council input on the plan and direction to continue moving forward toward finalization and adoption of the Specific Plan.

Summary Statement

- The planning process for the Westminster Downtown Specific Plan (Specific Plan) began in July 2013.
- A framework plan for the site, which identified a new street grid, development blocks and public spaces for a new downtown on the Westminster Urban Renewal Plan site was approved as part of a Preliminary Development Plan in October 2013.
- Several analyses for infrastructure and public amenities were conducted as part of planning process, including a public space study, traffic analysis, utility plan and drainage plan. These analyses have guided the design of infrastructure improvements within and serving the downtown site to ensure adequate capacity and minimized impacts to surrounding development.
- The Specific Plan for the Westminster Urban Renewal Plan (downtown) site will be comprised of several components, including a regulating plan for land use and development, streetscape design, built form standards and guidelines, green space guidelines, and implementation.
- Oliver McMillan (OM) was given the opportunity to review and provide input on the Specific Plan. Staff is continuing to work with OM, which may result in additional modifications to the Plan prior to presentation to City Council for final adoption.

Expenditure Required: \$0

Source of Funds: N/A

Policy Issue

Discuss whether the regulatory framework presented in the Westminster Downtown Specific Plan (Plan) is in line with the direction and vision that the Council has established for the site.

Alternative

City Council could determine that staff add to or reevaluate specific components of the Plan. Depending on the extent of proposed changes to the Plan, the timeline for adoption of the Plan, currently anticipated for late October, could be delayed. Likewise, the budget for completion of the document may be impacted.

Background Information

This staff report outlines the scope, analysis and contents of the Westminster Downtown Specific Plan. The Downtown Specific Plan provides the regulatory framework for implementing City Council's vision of a new downtown for the City of Westminster. Over the summer of 2013, City Council authorized staff to enter into a contract with Torti Gallas and Partners to develop the specific plan for the Westminster Urban Renewal Plan (WURP) site. Additional consultants, part of the Torti Gallas team include Martin and Martin for civil engineering, Nelson Nygaard for transportation, and Communitas for development feasibility.

Scope of Work and Plan Process

The scope of the plan process included a comprehensive analysis of all aspects of physical planning for the site to serve as a basis for policy making, design and implementation of the plan. As such, utility, drainage, and traffic analyses were prepared in concert with development of an overall development program for the site. These analyses assessed existing conditions and the impact of net new development on infrastructure. Proposed improvements to infrastructure (both site-specific and area - or city-wide) are outlined in the documents and included as elements of the overall framework plan for downtown. These analyses are included in Chapter 8 of the Specific Plan as appendices—8.2 Traffic Analysis, 8.3 Utility Plan and 8.4 Drainage Plan. In addition to the infrastructure analysis prepared for the site, Project for Public Spaces (PPS) prepared a report on Placemaking in Downtown Westminster. This report addresses the themes, programming, and quality of public spaces and parks of the Downtown Westminster framework plan. This report is also included in Chapter 8 as Appendix 8.1 Public Spaces Study.

The Specific Plan scope of work also included a robust site plan development and public outreach process. An initial site plan was developed for the area after an intense City and consultant team design charette. This site plan, or framework plan, was vetted with City Council in August 2013 and the community in the first round of outreach in September 2013. The framework plan was approved as a Preliminary Development Plan (PDP) in October 2013. This original approved PDP, which encapsulates the City's vision for an urban-scale, mixed-use downtown, is shown in **Attachment A**.

Following approval of the PDP, staff and their consultants have worked to develop a cohesive regulatory planning document (Downtown Specific Plan) to implement the vision and physical framework for a new downtown district. The framework plan for the site has been further informed and refined by the entrance of developer Oliver McMillan in March 2014. Staff has worked closely with Oliver McMillan to refine the framework plan and create a vision for a significant first phase of development on the site. As staff nears completion of the Downtown Specific Plan for the WURP site,

it is essential that City Council and the Westminster community have an opportunity to weigh in on the direction of the plan and its implementation. As such, a second round of community outreach was held in early September, 2014.

Plan Analysis

An integral part of the planning process for the downtown site was the development of an overall land use program for the site. This land use program was based upon the carrying capacity of the plan as well as economic market analyses completed for non-residential and residential uses. The resulting development program assumes a full build-out of the blocks planned within the site:

Projected Development Program at Buildout

<i>Land Use</i>	<i>Projected Development</i>
Residential (dwelling units)	2,000
Retail Commercial (square feet)	780,000
Hotel (square feet)	280,000
Office (square feet)	1,000,000

This development program was used as a basis for initial analysis for the utility, drainage, and traffic studies completed for the site. These analyses were completed as part of the Preliminary Development Plan process in late 2013. If development exceeds any of these projections, updates to the analyses will need to be completed to ensure infrastructure capacity is adequately met on site. Several analyses for citywide infrastructure improvements and planning, including water availability and sanitary sewer improvements, were conducted in mid-2014. These analyses assumed an additional 400 dwelling units, consistent with the Specific Plan’s residential development capacity limit of 2,400 dwelling units.

The analyses completed for the Specific Plan and included in Chapter 8 are summarized below and included as part of **Attachment B**.

Public Space Study

The city contracted with Project for Public Spaces, a nationally recognized firm in creating outstanding public spaces. They produced a study for the City regarding the proposed public spaces. This study provides a valuable contribution to the downtown plan and future design of the area’s parks and public spaces. Achieving a high quality public realm and experience that encourages visitors and community members to visit and return to Westminster’s downtown is essential for achieving the vibrancy and identity that City Council wishes to achieve for the site. As such, the study provides direction on how key themes that resonate with the Westminster community and future residents and workers will drive programming and design of each of these public spaces. Capturing these themes included significant stakeholder outreach, community input through the Specific Plan’s outreach process and citywide surveys completed by the Parks, Recreation and Libraries Department, and marketing, economic and demographic analysis. The themes identified in the study include:

- Health and Fitness
- Food and Gardening
- Tech-Oriented Amenities and Activities
- Dynamic, Interactive Art
- Community Celebrations and Gatherings
- Flexibility
- Spontaneity

The study also provides programming direction for each park and public space planned for the site as well as direction for optimal surrounding land use and urban design elements to maximize the success of each space. Note that the version presented in this draft analyzes the spaces established as part of the initial PDP framework plan. The final version of the Specific Plan will include an updated study that reflects the changes in location and spaces shown in the revised plan framework.

Traffic Analysis

A traffic analysis was completed for the Downtown Specific Plan as part of the initial PDP approval for the site. This analysis used as its basis the development program described above. Additional assumptions of the analysis included retaining the existing signalization along 88th and 92nd avenues, as well as an overall trip capture reduction rate of 35 percent. This trip reduction rate assumes that the mix of uses — (residential, commercial and office), — combined with the site’s strategic access to a significant regional transit hub, reduces the overall vehicle trips that would otherwise be generated by each use if located as separate developments. In other words, this means that residents and workers within the site will walk to key neighborhood services like a grocer, café or bank, rather than drive. Likewise, visitors to the retail uses on the site will park once and walk to retail destinations, thanks to the walkable, urban scale of the site. Finally, the presence of significant transit opportunities adjacent to the site will allow these same residents and workers to leave their cars behind in order to reach areas of employment elsewhere in the region.

However, the site will still generate significant traffic from the projected development. It is projected that approximately 34,500 vehicle trips will be generated on a daily basis. In comparison, vehicle trips generated by the mall when it was at full capacity (fully leased and operating) comprised approximately 43,500 daily trips. This comparison indicates that the projected development program will distribute approximately 30 percent less daily traffic than the former mall site. In terms of existing levels of service at the major intersections along 88th and 92nd avenues, it is anticipated that with minor improvements and optimization of signal timing that the levels of service will not be impacted (will remain at D, which is the City’s accepted level of service for major arterial, high traffic intersections as stated in the Comprehensive Plan and Roadway Master Plan).

Utility Plan

Like the traffic analysis, the utility plan was completed in concert with the PDP and used as its basis for the projected development program above. The existing infrastructure on the site will not meet the full extent of development anticipated at plan buildout as it was originally designed to meet the needs of a 1,000,000+ square foot mall development. The introduction of another approximately 1,000,000 square feet of non-residential development and 2,000 dwelling units will require additional infrastructure capacity. It is anticipated that improvements to infrastructure, both on-site and area- or city-wide will, over time, accommodate new development on the site. As part of the initial phase of street construction, new water and sanitary sewer lines will be constructed to establish a framework for new lines and connections to developments. Additionally, several area-wide infrastructure improvements are underway, including installation of a 24-inch water transmission main and improvements to the Little Dry Creek Interceptor Sewer Line.

Drainage Plan

The drainage analysis was completed in July 2014 and used as its basis for the above development program. Additional assumptions include an impervious surface percentage of 90 percent for streets and 80 percent for the rest of the site. (The previous mall site was nearly 100% impervious.) This assumption is conservative, as several parks are planned and some developments may have smaller courtyard or green spaces/roofs integrated on-site to reduce water run-off. Existing drainage of the site is directed to two off-site detention ponds. Drainage from the western portion of the site is

accommodated by a City owned detention pond located just south of the Lowe’s shopping center south of 88th Avenue abutting the BNSF railroad. The eastern portion of the downtown site drains to an existing detention pond at the southeast corner of the site, at the northwest corner of the Sheridan Boulevard and 88th Avenue intersection.

The anticipated drainage resulting from a 100-year event from the western basin of the downtown site will not exceed the existing Lowe’s pond volume. Drainage from the development within the eastern basin of the downtown site will be accommodated within a relocated and enlarged detention pond as shown in the framework plan.

Downtown Specific Plan Intent

Planning for a downtown must encompass a long-term vision for how a place may evolve over time. In order to retain flexibility and a sense of organic growth over time, the regulatory framework must allow for a range of uses, development types and ownerships to exist and be responsive to changes to the economic, social and natural environment. Likewise, the plan must establish the physical underpinnings for a civic, social and economic center that will endure and mature over time as a vibrant downtown. These elements include a walkable, connected street grid, well-programmed parks and public spaces, and an urban form that foster activity, engagement and accessibility. Thus, the key components of the Specific Plan include land use, urban design, the public realm, physical infrastructure, and guidance for how these elements will be implemented.

Plan Assumptions

Several key assumptions underlie the Specific Plan, including the incorporation of existing uses and infrastructure. Several uses remain on the site, on land owned by other entities as well as the City. The Brunswick Bowling and the McMurtry dental office sites are owned independently; JCPenney, Olive Garden and US Bank operate within City-owned lease areas. The Specific Plan allows for the continued operation of all of these uses with a street grid and block regulations that accommodate adaptive reuse or redevelopment over time. Existing infrastructure on the site is also retained to the extent possible, primarily comprising the existing intersections and signals along 92nd and 88th avenues, however the vast majority of this will be removed as its not in the correct location (i.e. water and sewer lines).

Plan Goals

The framework plan and subsequent development of the Specific Plan are based on the achievement of six essential goals that reinforce the City’s vision of a new downtown:

1. *Visual and Physical Center of Westminster*, defined by an urban form, streetscape design and civic spaces that create a visual and physical prominence within the city.
2. *Urban District with Active Frontages*, established by a built environment and cohesive public realm activated by a vibrant ground level with ample entries and windows, sidewalks that accommodate outdoor uses, public plazas, and attractive green spaces and landscaping.
3. *Pedestrian Oriented Environment*, fostered by the design and massing of buildings, an attractive and supportive streetscape environment with ample lighting and furnishing, and a connected street grid that supports walkability.
4. *Interconnected Circulation Network*, accommodating all modes of travel including vehicular, bicycle, walking and transit with a range of options for navigating downtown by vehicle, bike or foot.
5. *Multi-Faceted Green Space and Park Network*, offering a variety of spaces, functionality and uses and emphasized by connections and extensions into the urban environment.

6. *Direct, Convenient Access to Transit*, initially established by connectivity to the Westminster Park-and-Ride and availability of transit access within the site, as well as future access and accommodation for connections to commuter rail south of 88th Avenue.

Plan Components

The Downtown Specific Plan is comprised of several components, as described below.

The *regulating plan* establishes the street network, developable parcels, land use and development intensity permitted in downtown. The regulatory plan illustrates the location of new rights-of-way, dedicated park and public spaces, and development parcels. Permitted and prohibited land uses that support an active, urban environment with a wide range of uses are listed. Complementing the regulation of land uses are requirements for ground floor retail and active frontages to support a vibrant public realm as well as minimum development intensity to ensure an efficient use of land for both residential and non-residential uses.

Streetscape design within the plan provides conceptual design direction for various streets and street types within the downtown area. This design direction will serve as the conceptual basis for more detailed design efforts as development occurs and streets are constructed. However, the Specific Plan will establish an overall palette of materials, plantings and fixtures such as lighting and furnishings to ensure an overall cohesiveness and design quality for the downtown area.

Built form standards and guidelines establish the urban form of the downtown area. These standards are separated into block standards, building type and frontage regulations. Block development standards seek to accomplish an overall consistency in building placement, heights, and frontages along the street edge while also accommodating for unique conditions and relationships between uses (such as buildings that front onto park or plaza spaces). Building type standards address design within the overall block, with standards for façade width, lot width, pedestrian access, parking, green space, landscape and building massing. Finally, frontage regulations specifically address the relationship between the building and the street—the interaction and activity that is fostered in the public realm, or the sidewalk. These regulations set standards for ground floor design of buildings, how setbacks are utilized, and where and how building entries are located and designed.

The *green space guidelines* in the plan provide an overview of the entire green space network as well as more specific goals and programming elements for individual spaces. The development of this portion of the Specific Plan has been in concert with Project for Public Spaces (PPS) staff, who analyzed the overall framework plan and provided direction for how each public and park space could be maximized for the public benefit. This portion of the plan will be updated as part of the preparation of the Hearing Draft of the plan in order to reflect an update to the PPS Public Space Study scheduled for completion by the end of September.

Finally, the *implementation* component of the plan focuses on how development and infrastructure will be realized. This portion of the plan describes the streamlined development review and approval process, and provides an overview of the specific infrastructure elements that will need to be constructed both initially within the site and over time as development occurs. An implementation program with a detailed breakdown of each infrastructure piece will also be provided for staff to more easily track necessary improvements.

Next Steps

Following this study session with City Council and outreach with the community, staff will incorporate the input received into a final Hearing Draft Downtown Specific Plan for Council review. Public hearings with the Planning Commission and City Council on the final Downtown Specific Plan are anticipated for mid and late October 2014.

Consistency with the Strategic Plan

Staff considers the development of a cohesive vision and plan for the new Downtown as furthering several of the City Council's Strategic Plan goals. These include a Beautiful, Desirable, Environmentally Responsible City; Comprehensive Community Engagement; Dynamic, Diverse Economy; Visionary Leadership and Effective Governance; and Vibrant and Inclusive Neighborhoods; all of which encourage the development of an active, livable, transit-oriented and urban environment within the heart of the City.

Respectfully submitted,

J. Brent McFall
City Manager

Attachment A – Preliminary Development Plan for Downtown Westminster
Attachment B – Draft Westminster Downtown Specific Plan

GENERAL NOTES

1. THE EXISTING U.S. 36 RAMP AND SHERIDAN BLVD. ALIGNMENT IS NOT SHOWN ON THIS PRELIMINARY DEVELOPMENT PLAN. THIS PLAN ASSUMES THE FUTURE IMPROVEMENT AND REALIGNMENT OF SHERIDAN BLVD. AND THE ADDITION OF AN INTERCHANGE AT U.S. 36 AND 92ND AVE.
2. NOTE THAT THE HARLAN STREET ALIGNMENT HAS BEEN MODIFIED BETWEEN 88TH AVENUE AND 90TH AVENUE.
3. PURSUANT TO THE WESTMINSTER MUNICIPAL CODE, THIS PRELIMINARY DEVELOPMENT PLAN MAY NOT BE USED TO SELL, TRANSFER, CONVEY OR DONATE PROPERTY.

**PRELIMINARY DEVELOPMENT PLAN
DOWNTOWN WESTMINSTER PLANNED UNIT DEVELOPMENT
A PLANNED UNIT DEVELOPMENT
IN THE CITY OF WESTMINSTER
COUNTY OF JEFFERSON, STATE OF COLORADO
SHEET 4 OF 6**

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Westminster, Colorado

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www.tortigallas.com

Owner
Westminster Economic
Development Authority

Traffic Engineer
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(603) 570-9160

Civil Engineer
Martin/Martin
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Key Plan

Issue

Date	Description
9/16/13	Draft for City Review
10/9/13	PC Set

Revisions

No.	Date

Date
10/08/13

Principal In Charge
Neal I. Payton, AIA

Project Architect
Martin Leitner, AIA

Approved
NP

Drawn
ML

Job No.
13166.00

Scale
1" = 200'-0"

SHEET

4 OF 6
NOTES

PROJECT AREA SUMMARY

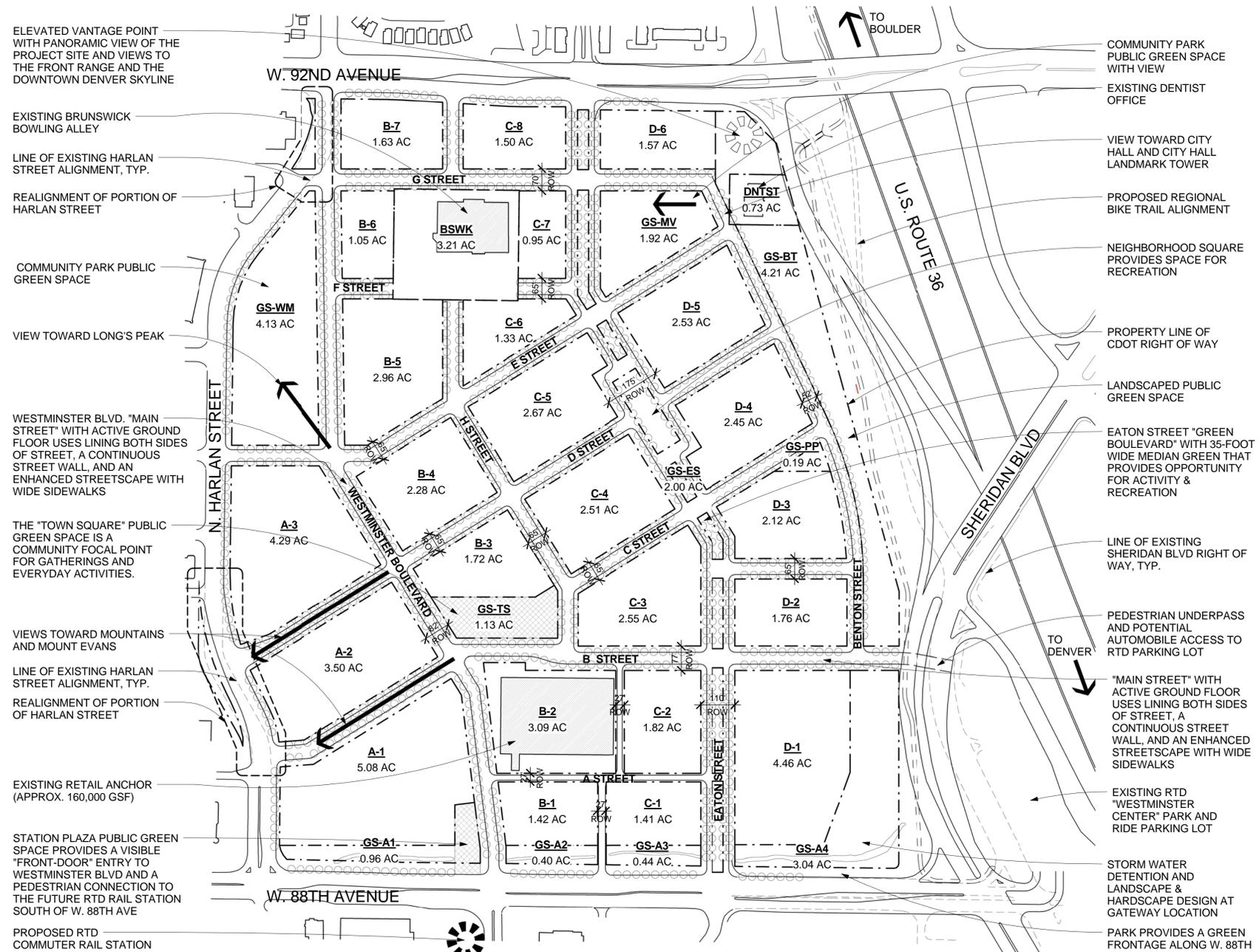
TOTAL SITE AREA	APPROXIMATE AREA
SITE AREA PER SURVEY	107.26 AC

PARCEL	APPROXIMATE AREA	% OF TOTAL
PARCEL A-1	5.08 AC	
PARCEL A-2	3.50 AC	
PARCEL A-3	4.29 AC	
PARCEL B-1	1.42 AC	
PARCEL B-2	3.09 AC	
PARCEL B-3	1.72 AC	
PARCEL B-4	2.28 AC	
PARCEL B-5	2.96 AC	
PARCEL B-6	1.05 AC	
PARCEL B-7	1.63 AC	
PARCEL C-1	1.41 AC	
PARCEL C-2	1.82 AC	
PARCEL C-3	2.55 AC	
PARCEL C-4	2.51 AC	
PARCEL C-5	2.67 AC	
PARCEL C-6	1.33 AC	
PARCEL C-7	0.95 AC	
PARCEL C-8	1.50 AC	
PARCEL D-1	4.46 AC	
PARCEL D-2	1.76 AC	
PARCEL D-3	2.12 AC	
PARCEL D-4	2.45 AC	
PARCEL D-5	2.53 AC	
PARCEL D-6	1.57 AC	
PARCEL BSWK	3.21 AC	
PARCEL DNTST	0.73 AC	
TOTAL	60.59 AC	56.5%

OPEN SPACE AREA	APPROXIMATE AREA	% OF TOTAL
ALLEN DITCH PARK	GS-A1 0.96 AC	
" "	GS-A2 0.40 AC	
" "	GS-A3 0.44 AC	
" "	GS-A4 3.04 AC	
BIKE TRAIL PARK	GS-BT 4.21 AC*	
EATON ST. MEDIANS	GS-ES 2.00 AC**	
MOUNTAIN VIEW PARK	GS-MV 1.92 AC	
POCKET PARK	GS-PP 0.19 AC	
TOWN SQUARE	GS-TS 1.13 AC	
WESTMINSTER PARK	GS-WM 4.02 AC	
TOTAL	18.42 AC	17.2%

PUBLIC R.O.W. AREAS	APPROXIMATE AREA	% OF TOTAL
TOTAL SITE AREA	107.26 AC	
LESS PARCEL AREA	60.59 AC	
LESS OPEN SPACE AREA	18.42 AC	
TOTAL	28.25 AC	26.3%

* DOES NOT INCLUDE OPEN SPACE IN CDOT RIGHT OF WAY
** INCLUDES TOTAL MEDIAN SPACE ALONG EATON STREET FROM W. 88TH AVENUE TO W. 92ND AVENUE.

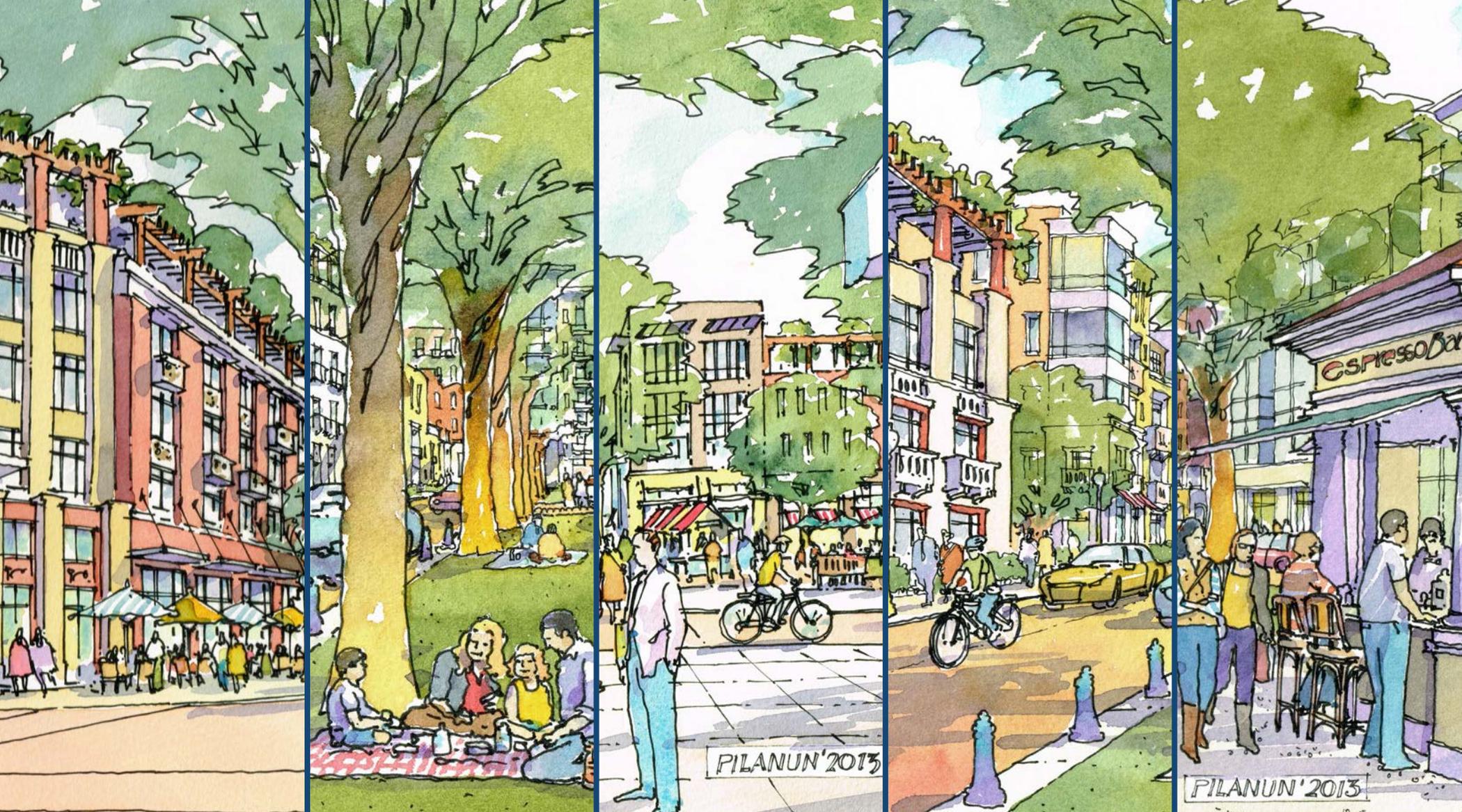


ILLUSTRATIVE SITE PLAN



SCALE: 1" = 200'

TORTI GALLAS AND PARTNERS, INC.



DOWNTOWN SPECIFIC PLAN

DRAFT



WESTMINSTER

WESTMINSTER, COLORADO
September 2, 2014

CREDITS

CITY OF WESTMINSTER

City Council

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Faith Winter, Mayor Pro Tempore
Bruce Baker, Councillor
Bob Briggs, Councillor
Alberto Garcia, Councillor
Emma Pinter, Councillor
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Mary Lindsey, Councillor
Scott Major, Councillor

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DRAFT

DOWNTOWN SPECIFIC PLAN

WESTMINSTER, COLORADO
ADOPTED MONTH ##, 2014

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1

INTRODUCTION

1.1. INTRODUCTION

In 2009, the City of Westminster, Colorado (City), embarked on an exciting process to transform the Westminster Mall, an auto-oriented shopping mall, into a vibrant, mixed-use urban downtown with exceptional access to a variety of public spaces. The result of this process is a long-term development vision that will guide the redevelopment of this 105-acre site into an urban center and focal point in the city.

In October of 2013, the City approved the Downtown Westminster Framework Plan. This initial framework plan set forth a framework of streets, public spaces, and land use that serves as the basis for this Downtown Specific Plan.

1.2 SPECIFIC PLAN PURPOSE AND SCOPE

This document, the Westminster Downtown Specific Plan (Plan or Specific Plan) guides new development as well as redevelopment within the Plan area. This Plan establishes the design vision, the intended character, and the development regulations that shape and implement the City's vision for its new downtown. Furthermore, this Plan describes the infrastructure and utilities that will serve the downtown area and provides a regulatory framework for implementation.

The Specific Plan provides a set of comprehensive policy objectives, standards, and guidelines governing land use, circulation and streetscapes, built form, green space, utilities and services, and Plan implementation. These policy objectives, standards, and guidelines

cover both the development of the public realm and private development and investments. Policy objectives are provided at the outset of each chapter. These objectives are meant to establish the intent of each element of the Plan and will be the basis for rulings of consistency where variances to standards or guidelines are pursued (refer to Section 6.3 for the variance process). Standards are objective criteria that provide specific direction based on the related policy objectives. Standards are used to define issues considered critical to achieving these objectives. Throughout the Plan, standards use the term "shall" to indicate compliance is required. Guidelines supplement the standards and policy objectives of the Plan. Guidelines use the term "should" or "may" to denote that they are considered pertinent to achieving the stated intent but allow discretion based on site and project conditions.

1.3 PLAN ADMINISTRATION

The Downtown Specific Plan is a regulatory document that establishes and defines the Downtown Specific Plan District; development in the Plan area must comply with the policy objectives, standards, and guidelines of this Plan. The Planning Manager shall have the discretion to determine whether alternative interpretations of these regulatory elements shall be permitted or will require a request for a variance, as outlined in Section 6.3: Development Process. The latter section also defines the development review and approval process for all improvements and development within the Plan area.

Westminster Boulevard

To the right: Artist's rendering of Westminster Boulevard at the heart of the mixed-use downtown.



1.4 PLANNING BACKGROUND AND PROCESS

Planning for a new downtown in Westminster has encompassed several visioning and design efforts. In 2009, the Westminster Economic Development Authority (WEDA) adopted the Westminster Center Urban Reinvestment Plan, an urban renewal plan for the site that set out City objectives to achieve a new transit-oriented mixed-use neighborhood that would provide the City with the unique opportunity to create a new downtown for the community. Initial plans for the new downtown envisioned a new street grid and mix of uses over the site, including residential, office and retail development. Acquisition of portions of the Westminster Mall by WEDA also began in 2009, with the majority of the site under WEDA ownership by early 2012. Since then, the majority of the mall structures and parking areas have been demolished to ready the land for new development.

In order to implement the vision for downtown, in 2012, the City embarked on an inclusive, citywide visioning and planning process to reinforce and develop a regulatory framework with which to establish this new downtown. The input garnered through this process—from community and City Council input to planning charrettes and consultant studies—was fundamental in the creation of the framework plan and vision set forth in this document. Beginning in March, 2012, three rounds of community outreach have been conducted. The initial round included a visioning and preference survey to obtain input on the community's physical, social and emotional definition of a new downtown for the City. City Council also participated in this visioning and survey process. An online

platform provided through the project's website mirrored the interactive survey and information. Approximately 250 participated in this first round.

Planning for the site framework – the streets and public realm of the new downtown – began in earnest in 2013 with a planning charrette with City staff and the Specific Plan consultant team. This iterative design process took place over several days and established the initial site framework presented to the public in the second round of outreach in September 2013. A final site framework with streets, public spaces and land use direction was approved as a preliminary development plan in late October 2013.

The Downtown Specific Plan, the first Specific Plan to be developed for the City, establishes the regulatory framework for implementing this preliminary site framework. Input into the development of this plan has included extensive analysis of site infrastructure, traffic, and site and market conditions as well as input from additional citywide surveys including the 2013 Parks, Recreation and Libraries Survey and consultation with Project for Public Spaces for specific programming and public realm amenities within downtown. A final round of public outreach was held in September 2014 on the plan framework, public realm and uses envisioned for the site. This Plan represents the final step in the planning process.



Community Workshop

Community members review information stations at a community workshop.



Community Workshop

Community members engage with planning staff at a station about the downtown vision.

Title
Caption



Figure to be inserted here.

1.5 PROJECT LOCATION AND CONTEXT

The Downtown Specific Plan Area (Plan area) is located in the heart of Westminster, Colorado, immediately adjacent to US 36 (also known as the Boulder Turnpike). The location is regionally well-connected and lies approximately half-way between Denver and Boulder, as shown in Figure 1-1. City Hall is less than half a mile to the east on 92nd Avenue as is the Westminster Center Park, which is home to a very popular children's playground. A little over a mile and a half to the north along Westminster Boulevard are the Westminster Promenade, Butterfly Pavilion, and 205-acre City Park facility.

The 105-acre Plan area is the former site of the Westminster Mall, once a primary social gathering space within the city. The Plan area is bounded by 88th Avenue to the south, 92nd Avenue to the north, Harlan Street to the west and US 36 and Sheridan Boulevard on the east. As shown in Figure 1-2, the area is adjacent to the 92nd Avenue/Sheridan Boulevard interchange. This strategic access and the site's location within the center of the city reinforce its potential as the heart of Westminster and key destination for the surrounding region. Additionally, the RTD Bus Westminster Center Park-n-Ride – one of the busiest stations within the entire Denver Metro area – is situated immediately to the east at Sheridan Boulevard and 88th Avenue.

Residential neighborhoods border the site to the north, and a mix of primarily office and commercial uses border the area to the west and south. Additionally, several buildings remain on the site, including two businesses on non-City-owned land – Brunswick Bowling

and a professional dental office. Other remaining buildings are located on City-owned property and include a restaurant, bank and department store. These existing uses are integrated into the plan framework with anticipation for future street connections and other public infrastructure if and when these sites redevelop.

The existing context of the Plan area also includes several infrastructure improvements underway within the vicinity of the site. These include reconstruction of the Sheridan Boulevard Bridge over US 36 and expansion of water and sewer infrastructure that will serve the Plan area as well as surrounding development with improved water pressure and capacity. The Sheridan Boulevard bridge, currently under construction (as of 2014), is a joint effort with CDOT and the City – with City enhancement funds providing an improved bridge design and landscaping. Planning for the utility improvements is also underway – these improvements will be vital in facilitating the intensity and scale of development anticipated for the Plan area.



Aerial Image of Westminster Mall

View of Westminster Mall in 2010 looking northeast. The intersection of Harlan Street and 88th Avenue is in the foreground.

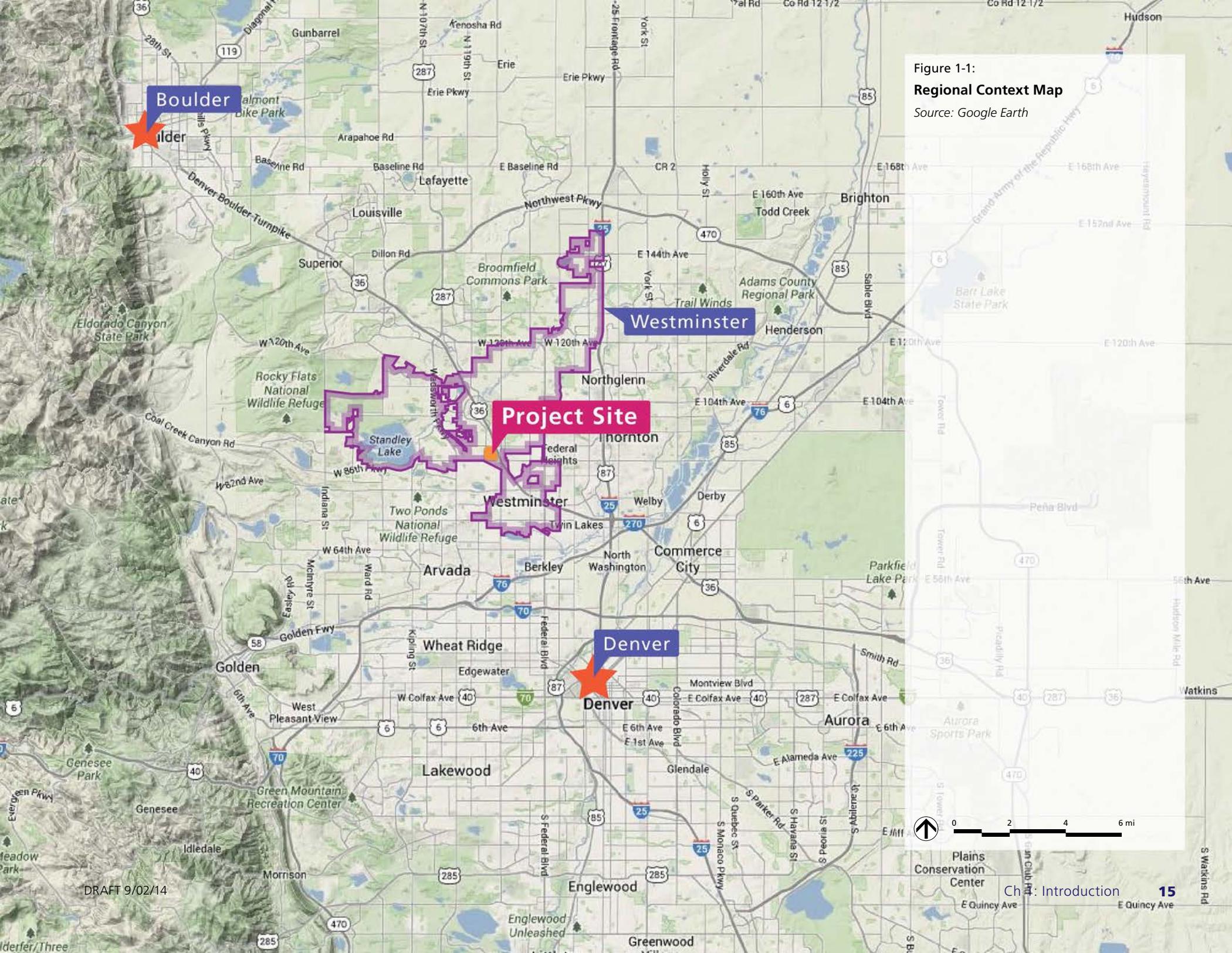


Figure 1-1:
Regional Context Map
 Source: Google Earth



Figure 1-2
Site Aerial
 Source: Google Earth

Key

- City-owned property
- Plan area boundary

0 200 400 600 ft

1.6 SPECIFIC PLAN VISION

The spirit of the Plan vision has its roots in the former Westminster Mall, which for many decades fulfilled the role of Westminster's primary social activity and gathering space. The mall's closure created a void in the social and emotional composition of the city that this Plan intends to fill through the creation of a new downtown.

The Westminster Downtown Specific Plan intends to realize the vision of a high density, urban scale, mixed-use development that will be a regional and community-wide destination in the heart of the city as expressed in the Westminster Urban Center Reinvestment Plan, adopted April 13, 2009. The project is intended to create a vibrant public realm with a high intensity mix of uses to include retail, office, hotel, civic, and residential uses, and a bustling active environment during both day and evening hours. Numerous new public spaces, both hardscaped squares and landscaped greener park spaces, will be located throughout the Plan area to provide a variety of environments that will serve residents and downtown visitors alike. Figure 1-3 illustrates the envisioned public realm and character of this Plan.

1.6.1 Specific Plan Goals

This Plan establishes the following goals that will guide the development of Westminster's new downtown.

1. Visual and Physical Center of Westminster

Urban form, streetscape design, and civic spaces will define the site's visual and physical prominence within the City – establishing it

as a cultural and social "hub." Likewise, these elements will establish a strong relationship with the Westminster community, with a well-defined public realm, inviting urban edges, and provision of key public amenities. Taller, strategically located buildings will further enhance the physical prominence of the new downtown. Enhanced streetscapes will provide a hierarchy of circulation, wayfinding, and views to key focal points and activity nodes. Civic spaces and plazas, located both at the edge of the site as well as in the interior, will provide a sense of place and identity, becoming community-wide destinations.

Key elements of the site's presence and visual prominence within the City of Westminster include:

- Taller buildings that establish the site's physical and visual prominence - with well-spaced towers and building massing that establish a skyline and emphasize access to views;
- An urban edge to the north along 92nd Avenue that defines the site's character and frames gateways and views into downtown;
- An improved recreational amenity along the Allen Ditch north of 88th Avenue as well as along US 36 that acts as an attractive community destination and inviting edge to the site;
- Building design, massing, and orientation that shape and activate gateways and activity nodes;
- Streetscapes and plazas that define an active, engaging public realm - defining the site's role as a cultural and community destination;



Conceptual Plan Sketch

An early site plan sketch lays out the fundamental elements of the Specific Plan vision. This sketch was developed during the preliminary design charrette.

- An angled street grid with views of Mount Evans and the Front Range to the southwest and views of Long's Peak to the northwest from many locations in the Plan area; and
- A robust network of easily accessible parks, local trails and regional connections offering a variety of spaces and opportunities for recreation.

2. Urban District with Active Frontages

The built environment of the site will establish a cohesive public realm where all development maintains an active frontage. This active frontage will be defined by a continuous street wall with building entries and fenestration oriented to streets, plazas, and green spaces. Access, loading, and "back-of-house"

functions will occur away from public view in alleys or well-screened loading areas. Within this framework, activity within the site will be dispersed: no single development or destination will define the full extent of pedestrian-oriented activity. While specific areas and streets may be defined as key activity centers, opportunities for retail and neighborhood services will extend to many locations throughout the mixed-use, urban fabric of the site.

3. Pedestrian-Oriented Environment

The design of development within the site will establish a building-to-street relationship that fosters an active, engaging pedestrian realm. At the building level, massing and articulation of building forms will reflect a pedestrian scale. Design of the ground floor will

emphasize pedestrian comfort, visual interest, and opportunities for interaction and activity. Additionally, streetscape elements, such as lighting, seating, landscaping, paving, and crosswalk design will be scaled and oriented to the pedestrian to enhance safety, comfort, and walkability.

4. Interconnected Circulation Network

The street network on the site will provide an interconnected system of vehicular, bicycle, and pedestrian circulation. Vehicular circulation and access to downtown will be balanced with other modes of travel. Bicycle and pedestrian movement will be emphasized, as well as opportunities for enhanced landscaping along key corridors. Wide sidewalks, slow traffic speeds, and off-street paths will establish a multi-layered network of connectivity throughout the site, maximizing circulation options and flexibility. Likewise, block sizes will be scaled to the pedestrian, providing a short walk from end to end and visual variety and interest with more frequent breaks in the street wall. Connections at the interior of blocks will ensure that larger blocks in commercial areas will maintain a high level of choice for pedestrian movement.

5. Multi-Faceted Green Space and Park Network

Like the circulation network, the green space network within the site will have varying concepts of functionality and use. The framework of green space in the site, illustrated in Figure 1-4, will be a connected series of linear spaces extending along 88th Avenue, US 36, Central Parkway, and a north-south “green boulevard” along Eaton Street. Complementing this recreational connection will be several

parks that will serve as focal points for new residential, mixed-use, and office development. These parks are critical, as they will serve a new population of at least 3,000 new residents – a population that expects, as all Coloradans do, safe access to ample recreational opportunities and spaces for both physical and emotional wellness. Finally, civic-oriented spaces within the heart of mixed-use and commercial development will provide opportunity for community-wide gathering and events. These spaces will be designed and sized to accommodate civic uses, farmers markets, and events that will serve the entire Westminster community.

6. Direct, Convenient Access to Transit

Opportunities to access and utilize transit will be emphasized by the location and intensity of land uses as well as the provision of key infrastructure and facilities. Higher intensity mixed-use and commercial development will be able to access transit by a grade-separated connection to the Westminster Center Park-and-Ride east of Sheridan Boulevard and an at-grade crossing of 88th Avenue to the future Fastracks commuter rail station. Location of high-intensity employment uses and a new high-density residential neighborhood adjacent to transit will further support ridership.



Illustrative Model

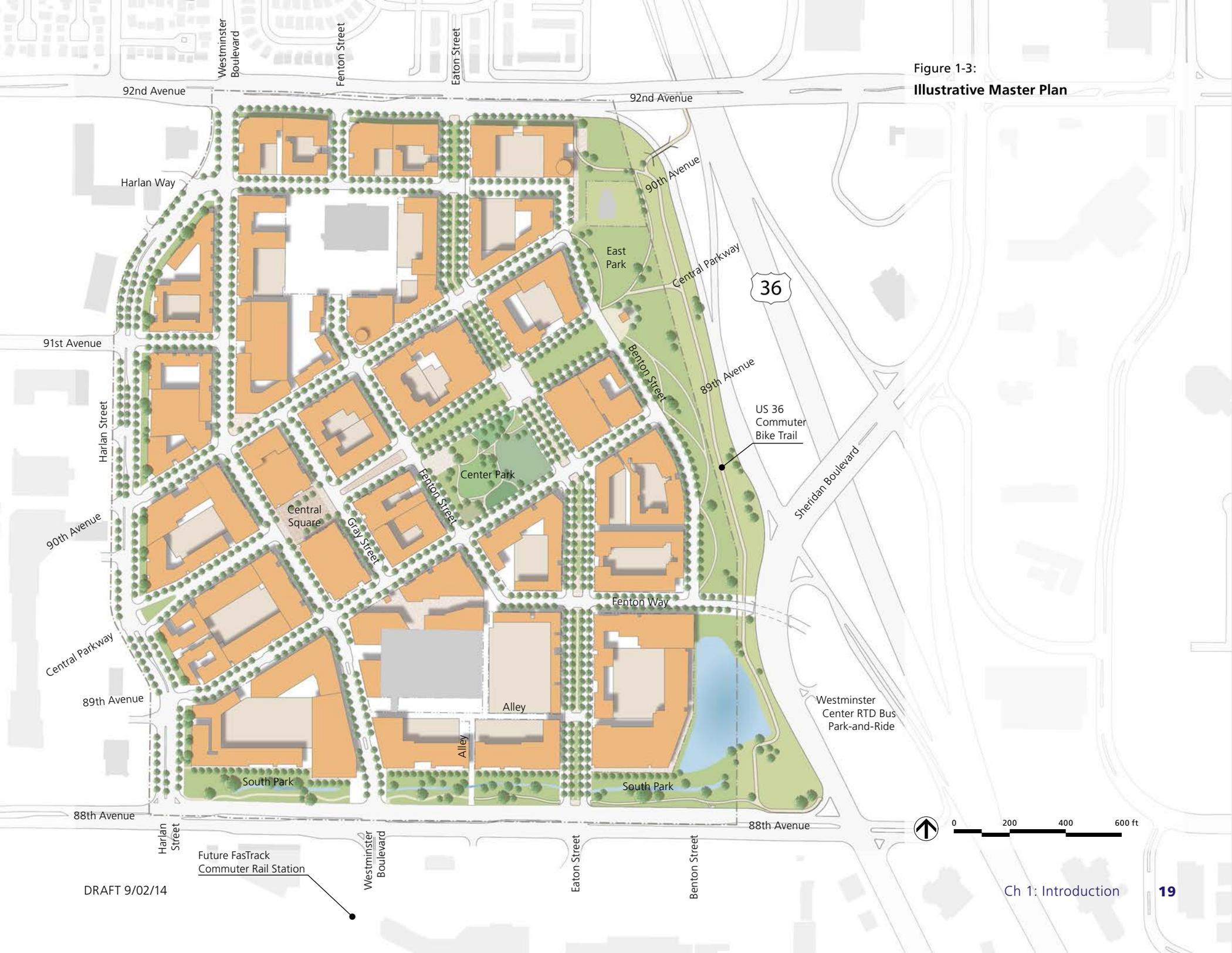
View looking east with Harlan Street in the foreground and city hall with its tower in the background.



Illustrative Model

View looking south along the new Eaton Street “green boulevard.” On the left-hand side of the image, US 36 leads towards Denver.

Figure 1-3:
Illustrative Master Plan

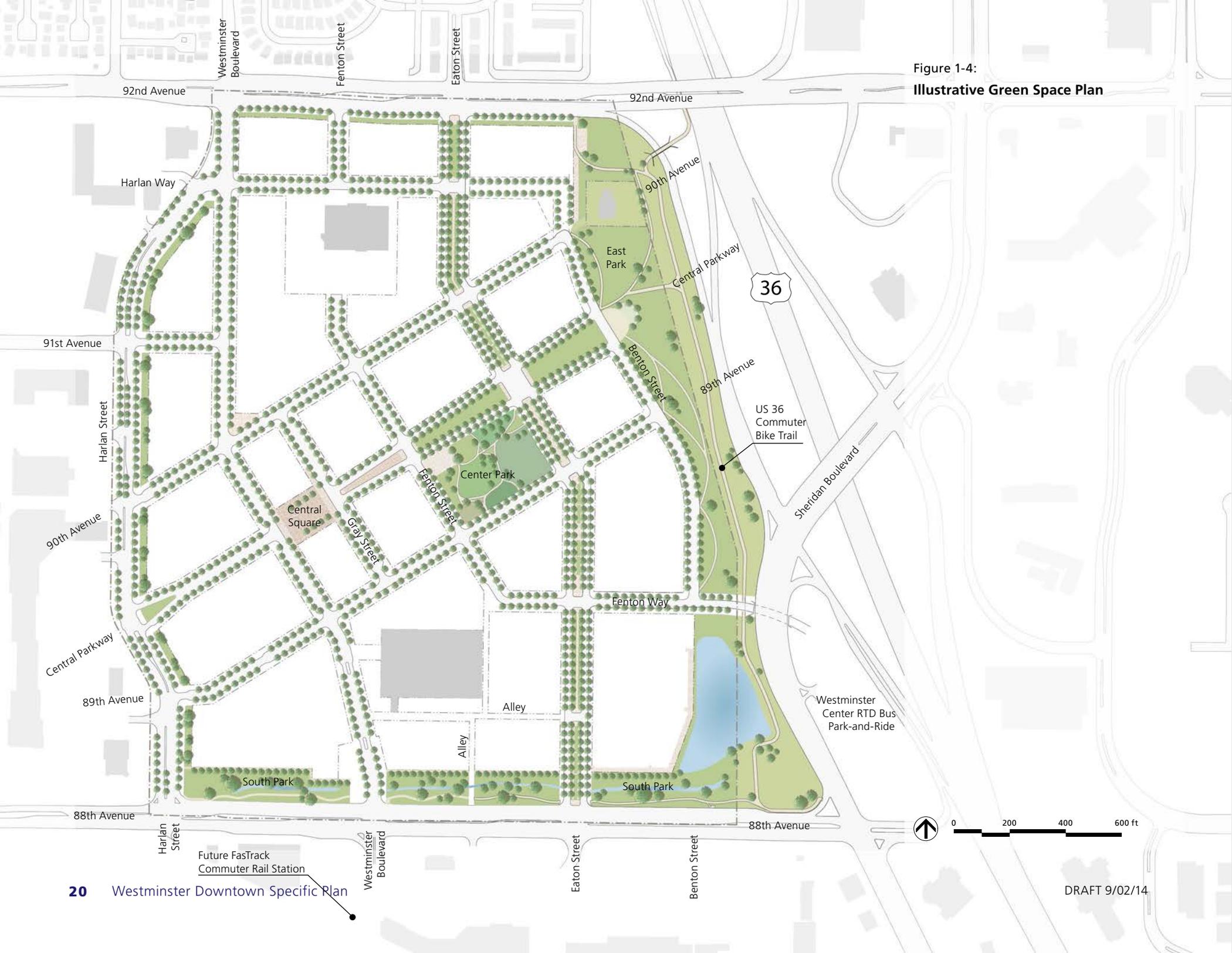


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Future FasTrack
Commuter Rail Station

Figure 1-4:
Illustrative Green Space Plan



1.7 SPECIFIC PLAN DOCUMENT ORGANIZATION

As described in the Plan's Scope and Purpose, the Specific Plan regulates and guides development within the Plan area boundaries. In doing so it takes a decidedly "form-based" approach, which means the standards and guidelines of this Plan intentionally shape the public realm, green spaces, and building forms to ensure an urban fabric is established throughout downtown. Therefore, this Plan's standards and guidelines' primary focus is good city form.

To ensure compatibility of land uses within the Plan area and adjacent neighborhoods, this Plan also provides basic regulations for land uses and development intensity. Finally, the Plan's implementation chapter provides a framework with which to implement the Plan vision.

The Specific Plan regulations are organized in chapters, each of which addresses regulations that focus on different aspects of the downtown.

Chapter 2: Regulating Plan

This chapter sets forth the overall plan framework with the location of rights-of-way, designation of public spaces and provisions for land use for the entire Plan area. It lists permitted uses, prohibited uses, and uses that are permitted under certain circumstances. Additional use-related requirements, such as location of active retail frontages at the ground level are also delineated. Furthermore, this chapter regulates the allowable development capacity on each site.

Chapter 3: Circulation and Streetscape Plan

This chapter encompasses the circulation plan for downtown, with presentation of the overall street network and hierarchy, transit access and bicycle and pedestrian movement. Specific focus on streetscape regulations address the design of the space between the buildings, including both the public rights-of-way and the private yards that adjoin them. The streetscape standards provide street designs (street sections) for all public rights-of-way within the Plan boundaries. Private development must follow the setback standards and take particular note of the transitions between streets and yards.

Chapter 4: Built Form

Chapter 4 regulates development on development *blocks* defined by the property lines that separate them from the public rights-of-way. The first three sections of this chapter provide built form standards for (1) the *block*, (2) *building types*, and (3) *building frontage types*. These sets of standards are highly interrelated: therefore, it is recommended that these sections be reviewed in sequence. While the built form standards provide a great deal of development flexibility, proposed projects must comply with the regulations of this chapter. The introduction to Chapter 4 provides additional guidance.

The remaining sections of the chapter cover development standards and guidelines that are more general in nature and apply to all developments. These include various additional development standards, parking standards, and sign regulations unique to the Specific Plan Area.

Chapter 5: Green Space Plan

This chapter provides guidance for the major public green spaces envisioned in this Specific Plan and their significance within the new downtown's urban design framework. The role of each public space is described in conjunction with conceptual programming elements that will best activate the space and surrounding development as well as serve downtown's and Westminster's populations. Note: Private green space requirements are contained in the building type standards in Section 4.3 with additional regulations in Section 4.5.7.

Chapter 6: Implementation

This chapter provides provisions for the implementation of the Specific Plan, including the development review process, how infrastructure will be provided to serve new development, management of public facilities and infrastructure, and phasing for initial improvements.

Chapter 7: Glossary of Terms

This document uses a variety of terms that are specific to the standards and guidelines presented herein. Throughout this Plan these terms are *italicized* and *colored* for clarity. They are defined in Chapter 7.

1.7.1 Document Numbering

Within the Plan's chapters, sections are numbered according to the following convention: Sections are identified by the chapter number followed by the section number (e.g. 3.2). Subsections are identified by the chapter number, section number, and the subsection number (e.g. 3.2.2). Standards and guidelines may be further identified by capital letters (e.g. 3.2.2. B.) and the by lower case roman numerals (e.g. 3.2.2 B.i.).

1.7.2 Illustrative Images and Photos

This Plan creates a framework for design and development that will happen over many years. To aid in understanding the practical application of the requirements of the Specific Plan, the Standards and Design Guidelines include illustrative renderings and photographs to show the intent of various requirements and provisions. These illustrative renderings and photographic images should not be interpreted as requiring a specific mix, use or type of development of the specific style of design elements; they are simply a prototypical depiction of possible arrangements and types of conforming development.

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2 | REGULATING PLAN

2.1 OVERALL REGULATING PLAN INTENT

This chapter of the Specific Plan sets forth the overall framework and use of land within the Plan area. The regulating plan establishes public rights-of-way, dedicated public spaces, development *blocks*, and land use for all land within the Plan boundaries. In keeping with the vision of a vibrant, mixed-use downtown, the land-use regulations of this Plan provide a large degree of flexibility. Nonetheless, in order to ensure the compatibility between various uses and the compatibility of individual uses with the overall Plan vision, this chapter regulates uses that are permitted, not permitted, and permitted under special circumstances.

Complementing these land use regulations are permitted development intensity and capacity requirements that underline the urban vision for the downtown while also maintaining consistency with citywide policy for water consumption.

Policy Objectives

1. Establish a vibrant, mixed-use downtown district that acts as a community and regional destination.
2. Foster a synergistic mix of land uses that includes commercial, residential, employment and civic uses.
3. Encourage land uses to be vertically mixed to provide a range of activities and a diverse population throughout downtown, and particularly around key civic and pedestrian-oriented destinations.
4. Reinforce activity in key areas in downtown with active, ground floor retail

uses. Similarly, activate the edges of major public spaces with active uses at the ground floor to better integrate these areas into the public realm and experience of downtown.

5. Encourage restaurants to provide outdoor dining along public plazas and green spaces.
6. Provide neighborhood retail and services that meet the everyday needs of downtown's residents and workers and reduce car dependence.
7. Foster a diverse commercial environment that supports a range of affordability and businesses.
8. Provide a diversity of housing types and affordability, including townhomes, stacked flats or apartments, and live/work units.

2.2 FRAMEWORK PLAN

The Specific Plan establishes an overall framework for public and private use within the downtown. Figure 2-1: Land Use and Framework Plan delineates public rights-of-way and development *blocks* for public and private use. The rights-of-way are based on a street network that establishes a fine grain street and block system to emphasize circulation for all modes of travel through downtown (see Chapter 3 for more detail on Plan circulation). The development *blocks* are sized to not only promote this ease of circulation but to also accommodate a wide variety of land uses and associated building types.

The Plan Framework is designed to integrate existing uses and parcels into the downtown street network and block system. Future

street connections and development *blocks* shall follow the rights-of-way and block system established in this Plan as redevelopment of existing uses occurs and allows for completion of the street network. Additional future street connections may also be aligned through larger *blocks* defined in the Framework Plan. Directions for how these *blocks* should be divided are in the Block Development Standards in Chapter 4.

2.3 LAND USE

2.3.1 Permitted Land Uses

Development *blocks* within the Plan area shall have the land-use designations per Figure 2-1: Land Use and Framework Plan. *Blocks* designated "Downtown Mixed Use" shall permit the uses listed in Table 2.3.1.

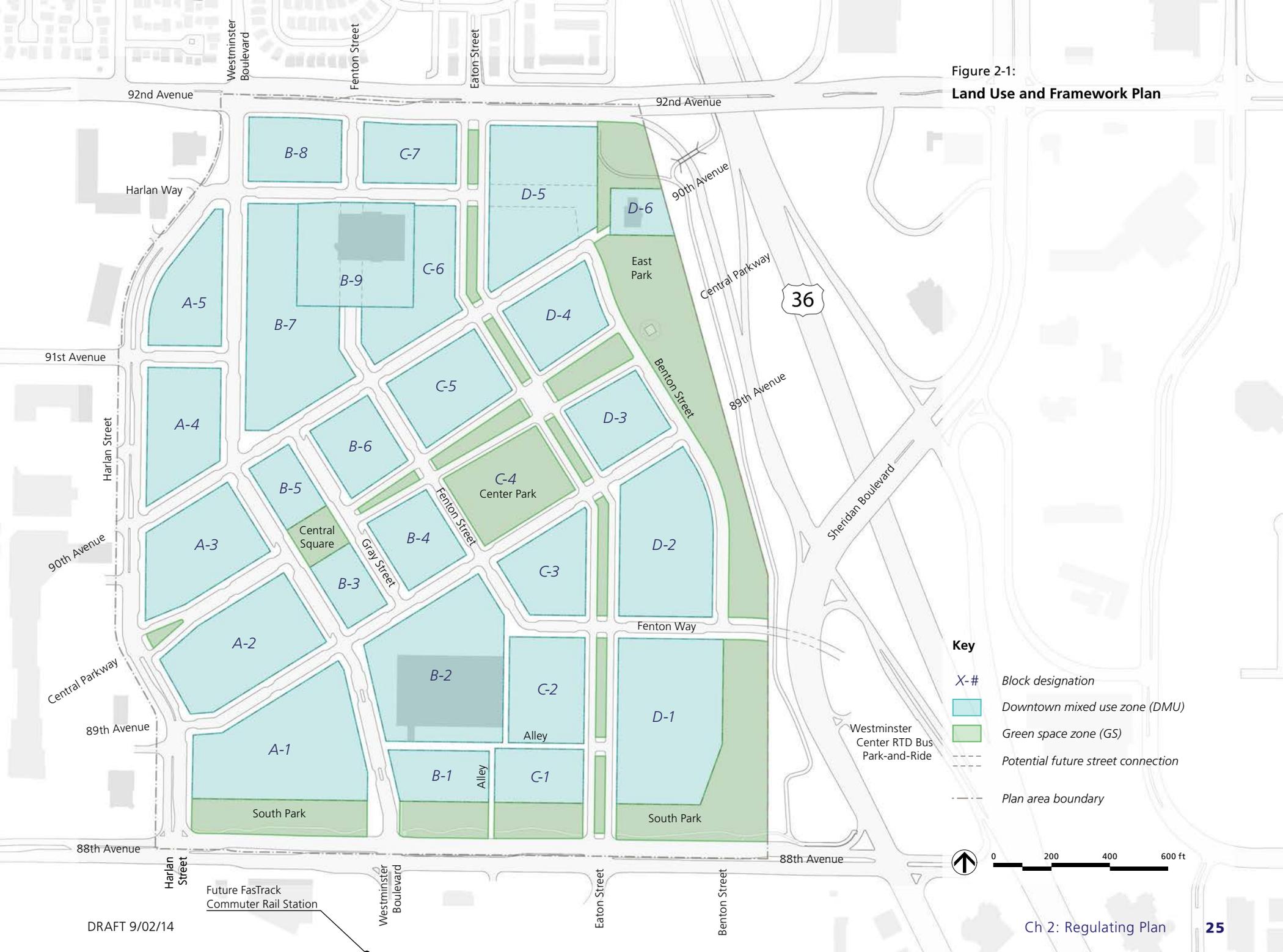
2.3.2 Retail Use Requirements

Downtown Westminster is envisioned as having a highly active public realm with city streets that are designed for substantial pedestrian activity. In order to support this vision, it is imperative that ground-floor uses in certain Plan areas provide retail spaces that activate and engage residents and visitors alike. Hence, this Plan identifies ground-floor *frontages* on which retail uses are required. The Plan also identifies locations where such retail *frontages* are strongly encouraged to further the goals of this Plan.

Ground-floor retail spaces shall be provided along street frontages where indicated in Figure 2-2: Ground-Floor Retail Standards.

Where indicated, ground-floor retail space is strongly encouraged. Storefronts shall have a minimum depth of 25 feet measured perpendicular to the property line from the exterior face of the building facing the street to the back of the *habitable space*. See Section 4.4 for storefront standards for retail *frontages*.

Figure 2-1:
Land Use and Framework Plan



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Future FasTrack
Commuter Rail Station

Table 2.3.1: Permitted Land Uses	DMU
Residential Uses	
Single-Family Attached Dwelling Units	P
Multi-Family Dwelling Units	P
Boarding & Rooming Houses	P
Nursing Home/Facilities	P
Group Homes	C
Group Care Facility	S
Institutional Care Facility	S
General Uses	
Public Utilities	P
Temporary Construction & Real Estate Buildings	P
"Radio and Television Towers & Microwave Transmission"	P
Public Schools	P
Office and Similar Uses	
Accounting, Bookkeeping	P
Addressing/Mailing Service	P
Administrative Office	P
Adoption Agency	P
Advertising Office	P
Aerobics, Ballet, Dance, Exercise Instruction, and Classes Studios	P
Appraisal Service	P
Architecture, Landscape Architecture, Planning, Design Office	P
Bank & Financial Institution	P
Counseling/Consulting Service	P
Credit/Collection Agency	P
Data Processing Service	P
Detective Agency	P
Employment Agency	P
Engineering & Technical Office	P
Entertainment Services Office	P
Fraternal & Service Club	P

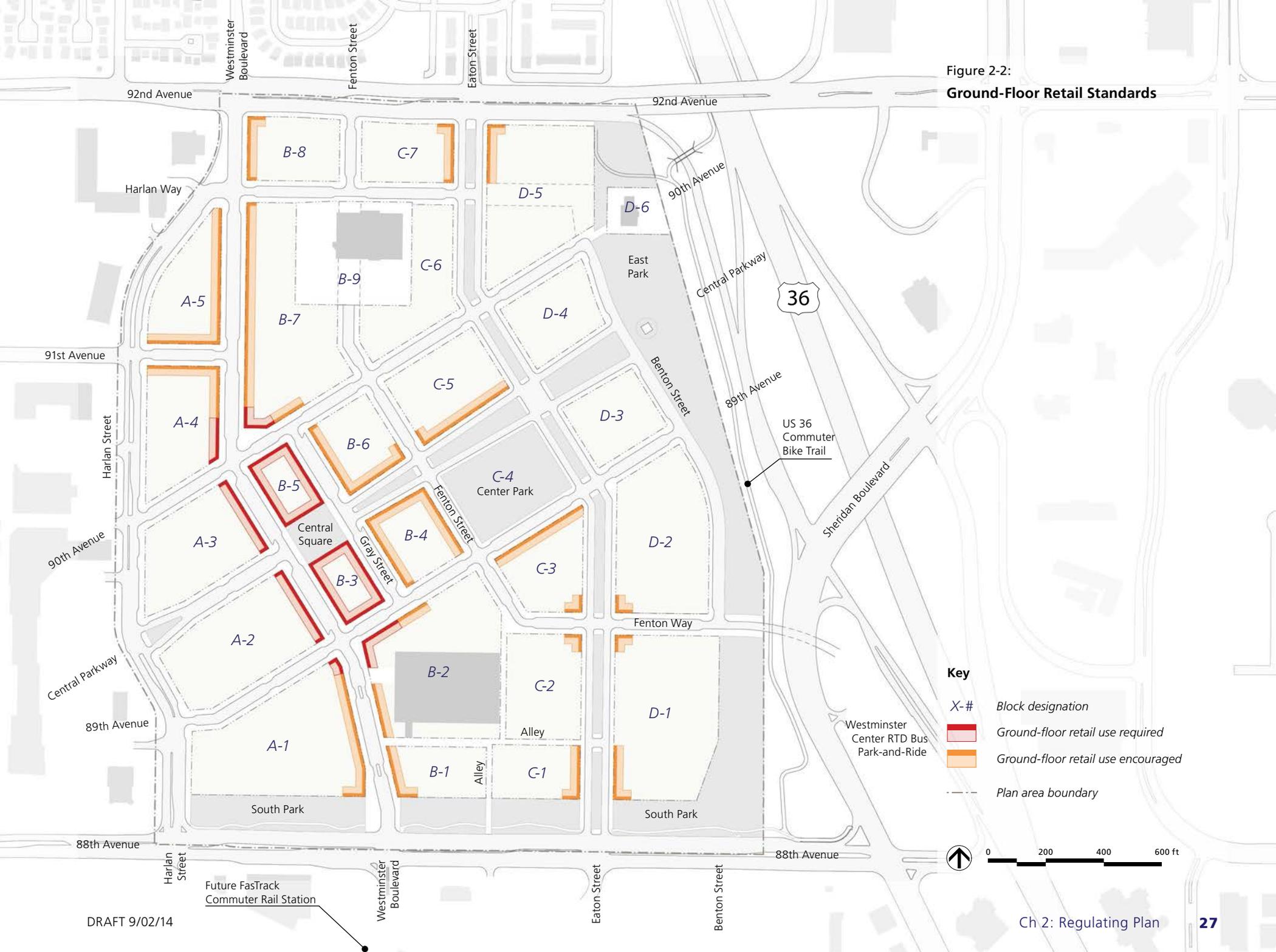
Table 2.3.1: Continued	DMU
Insurance Office, Sales & Adjustors	P
Legal Service	P
Medical/Dental Office and Clinic	P
Military Recruiting	P
News Office	P
Real Estate Office	P
Professional Office	P
Radio/TV/Recording Studio	P
Research & Development	P
Training Service	P
Veterinary Office and Clinic, Indoor	P
Veterinary Office and Clinic, Outdoor	S
Business and Commercial Uses	
Animal Day Care, Indoor	P
Antique Shop	P
Apparel & Accessory Store	P
Art Galleries/Art Sales	P
Arts & Crafts/Drafting Supply	P
Assembly Halls, Event Centers, & Churches, includes private functions, such as weddings, receptions, conferences and meetings	P
"Audio/Visual and Consumer Electronics Sales, Service & Parts Store"	P
Automobile Accessory Store	P
Automotive Rental Office 1)limited to 1.5 vehicles per 100 square feet of lease space with a maximum of 20 vehicles 2) vehicles must be in good condition (mechanically & exterior) 3) no car wash, maintenance or repair facilities 4) limited to 1 office per shopping center	P
Bakeries	P
Bar/Nightclub/Tavern	P
Barber & Beauty Shop	P
Beauty Supply Sales	P

Table 2.3.1: Continued	DMU
Bed & Bath Shop	P
Book/Magazine/News Dealer, Excluding Dealers Selling Goods Not Available To All Ages	P
Brewery/Destillery	S
Brewpub	P
Camera & Photographic Supply	P
Carpet & Rug Store	P
China & Glassware	P
Cleaning/Laundry/Tailor/Fur Storage	P
Computer Hardware, Software, and Accessories	P
Consignment Shop (under 3,000 sf gross floor area)	P
Costume Sales & Rental	P
Custom Crafts/Ceramics/Stained Glass	P
Day Care Facility	P
Department/Variety/Catalog Store	P
Draperies & Window Coverings	P
Drug Store	P
Electronic Appliance Repair	P
Fabric Store	P
Fast Food Restaurant/Snacks	P
Florist & Plant Shop	P
Food/Grocery Store	P
Furniture Store	P
Furniture/Equipment Rental for Home Use Only	P
Gifts/Novelties/Souvenirs, Excluding Dealers Selling Goods Not Available to All Ages	P
Hardware	P
Hotel/Resort	P
Indoor Entertainment Establishments, including Amusement Centers, Bowling, Billiards, Movie Theaters & Similar Uses	P

Table 2.2.4: Continued	DMU
Jewelry/Watch & Clock/Watch & Clock Repair Store	P
Kitchen, Cookware Store	P
Lawn & Garden Store	P
Leather Goods & Luggage Store	P
Liquor Store	P
Massage Therapist	P
Medical Equipment	P
Music, Records, Tapes, Video Sales & Rental	P
Office Furnishings & Supply/Type-writer Sales & Service	P
Optical Store	P
Packaging & Postal Substation	P
Paint & Wallpaper Store	P
Pet Store/Pet Grooming	P
Photography/Processing Studio	P
Print Shop	P
Private Schools	P
Restaurants	P
Saddle & Tack Store	P
Shoe Sales/Repair	P
Sporting Goods	P
Stationery & Card Shop	P
Tanning Salon	P
Tattoo Parlor/Body Piercing Parlor	S
Toy/Hobby Store	P
Travel Agency	P
Thrift Store (under 5,000 sf gross floor area)	C

Table key: P – Permitted uses, allowed as of right; C – Conditional uses, are allowed upon a determination that they meet the conditions specified in Section 11-4-9, W.M.C.; S – Special uses, may be allowed if they receive a Special Use Permit under Section 11-4-8, W.M.C.

Figure 2-2:
Ground-Floor Retail Standards



2.4 DEVELOPMENT CAPACITY

Development capacity within the Plan area is determined by multiple measures including site-specific development regulations, minimum development intensities and overall Plan capacity for residential development. On any one site, the primary limitation of development capacity is the Built Form regulations of Chapter 4. Minimum development intensities, as established in this section, define the lower limitation of development that shall be achieved on any one site. Finally, overall residential development capacity for the downtown area is defined and shall potentially limit residential development capacity on any one site if the overall capacity has been achieved.

2.4.1 Minimum Required Site Development

A minimum amount of development is required on each site to ensure that the intensity of new development supports the overall Plan vision of a vibrant downtown. For non-residential and mixed-use developments, this minimum level of intensity is defined by a minimum Floor Area Ratio (FAR). An FAR is the ratio of total building area to total site area, where for example, a 40,000 square-foot building on a 40,000 square-foot lot would have an FAR of 1.0. Within the Plan area, the minimum FAR for non-residential and mixed-use developments on any one site shall be 0.5. The Planning Manager shall have the discretion to allow for phased development that would meet the minimum FAR.

Residential development intensity is expressed by density, the ratio of total dwelling units to

total site acres. For example, a development with 60 dwelling units on a 1.5-acre site would have a density of 40 units per acre. In the Plan area, the minimum density for residential developments on any one site shall be 16 units per acre.

2.4.2 Maximum Residential Development Capacity

The Specific Plan limits the total number of residential development that can be achieved in downtown. This limitation ensures that the anticipated water use of future development in the downtown is in balance with water resource availability and infrastructure capacity of the City.

The total number of residential dwelling units within the Plan area shall not exceed the water availability for the site. Water availability is based on service commitments. One service commitment is equivalent to 140,000 gallons of water use per year, which is based on one single family detached home. Service commitments are calculated and issued based on the dwelling unit type, as specified in Table 2.4.1. Total residential development in the Plan area shall not exceed 1,350 service commitments. Once all 1,350 residential service commitments are issued, no additional residential development will be permitted and the residential development capacity on each block will become zero dwelling units per acre.

Should residential dwelling units be demolished and not replaced as part of a new development on the same site, the unused service commitments will be returned to the overall residential development water avail-

ability. The service commitments will then be available for development on any site on a first-come, first-served basis.

Table 2.4.1:
Service Commitments Equivalence

<i>Dwelling Unit Type</i>	<i>Service Commitments</i>
Single Family Detached	1.0
Single Family Attached	0.7
Multifamily	0.5
Senior Housing	0.35

CIRCULATION & STREETScape DESIGN **3** |

3.1 OVERALL CIRCULATION AND STREETScape INTENT

While residents and visitors may get to downtown Westminster by many different means, once they arrive there, everyone becomes a pedestrian. This fact informs design strategy for both the overall planning of the street network, as well as the composition of the street spaces themselves: their proportions and their detail. At the network level, the layout of downtown Westminster recalls the grid-like patterns of traditional towns, in which a tightly woven grid of streets provides multiple routes to any destination. This traditional pattern (as evidenced in places like Boulder and downtown Denver, among others) not only provides enhanced connectivity within the Plan area, it also ensures that no one street gets so wide as to be unwelcoming to pedestrians. In fact, each street within the downtown has been considered not only for its vehicle carrying capacity, but also for its ability to promote walking and biking. At the detail level, the Plan provides for standards and guidelines for new, multi-modal streets that promote access and mobility whether one is on foot, on a bike, a bus, or in a motor vehicle.

The intent of this strategy goes even further than the mere promotion of multi-modality. Recognizing that, when designed properly, a city's streets become an integral part of its green space network, this Plan provides a vibrant environment of street spaces that encourages activity. Moreover, streets designed for walking can reduce reliance on the automobile and improve public health.

Policy Objectives

1. Highlight connections and foster access to transit throughout the downtown area.
2. Ensure bicycle and pedestrian mobility throughout downtown is safe, connected, and easy to navigate.
3. Utilize creative solutions and accommodations to support bike use in downtown, particularly in relation to the US 36 Commuter Bike Trail.
4. Foster multi-modal connectivity between key destinations and activity areas, civic spaces, parks and transit through clearly-marked connections and wayfinding.
5. Facilitate connections to surrounding neighborhoods and developments with enhanced crossings and street connections.
6. Ensure the street network maximizes internal connections and circulation options, and that block sizes support the urban form and character of downtown.
7. Design streets to foster an active, engaging pedestrian environment.
8. Employ technologies that assist in wayfinding, parking access, and transit ridership.



Urbane Streetscape

A well-designed streetscape creates a public realm that safely accommodates pedestrians, cyclists, as well as automobiles.

3.2 TRANSIT ACCESS

The provision of and access to transit is an essential component of an urban, multi-modal environment. While accommodation of bicycle and pedestrian movement within downtown's street network will serve to reduce internal traffic, residents, workers, and visitors will still be connected and dependent on access to the larger Denver Metro region. As a result, maximizing access to existing transit and planning for connectivity to future transit is integrated into the overall Plan Framework.

Existing transit service to the downtown area is provided by the Denver Regional Transit District (RTD) and includes 14 bus lines. The primary bus station that serves the Plan area is the Westminster Center Park-and-Ride. The station is one of the busiest park-and-ride stations in the entire RTD bus network with almost 1,000 boardings a day. Regional bus lines that are accessed at the Park-and-Ride primarily run along US 36 between Boulder and Denver and include the AB, B, DD, DM, S, T and 86X. The AB line provides direct access to the Denver International Airport. Local bus lines that access the Park-and-Ride and downtown area include the 31, 51, 92, 100, and 104. Currently, five local bus stops serve downtown, including two along 88th Avenue, two along Harlan Street, and one along 92nd Avenue. As the downtown area develops and the street network is introduced within the site, additional local bus stops internal to downtown will be identified.

In addition to integrating local bus access into the site, the Specific Plan identifies a key connection to the Park-and-Ride. Currently, Sheridan Boulevard blocks direct access to the Park-and-Ride. Therefore, this Plan proposes

a new underpass that will allow pedestrians, bikes, and potentially transit vehicles to access the Park-and-Ride. This underpass will extend Fenton Way to the east and provide a critical link to the region's public transit network.

Future transit service to the Plan area includes a planned extension of the FasTracks Northwest Commuter Rail Line and potential shuttle service that could be either publicly or privately provided to either the Westminster Center Park-and-Ride or the future commuter rail station. As shown in Figure 3-1, the planned commuter rail station is located just south of 88th Avenue in general alignment with Westminster Boulevard. Completion of the line is not projected to occur for another 25 to 30 years; however, the Specific Plan does recognize that connectivity to this future transit will be essential when it is provided. Thus, the streetscape design of 88th Avenue does contemplate a future analysis of reducing travel lanes and the overall pedestrian crossing length to facilitate pedestrian and bicycle access across the street. Finally, shuttle service may also provide additional transit access into the Plan area. This service could incorporate other key destinations nearby downtown, including the Promenade and Butterfly Pavilion to the north on Westminster Boulevard and City Park to the north along Sheridan Boulevard.



Title
Caption

Figure to be inserted here.

3.3 BICYCLE AND PEDESTRIAN NETWORK

The Downtown Specific Plan provides pedestrian and bicycle connections throughout the Plan area, as shown in Figure 3-1. They connect to downtown's public spaces and parks as well as to surrounding neighborhoods, destinations and trails. This section describes these connections.

Bicycle Movement

This Plan seeks to create bicycle connections between the Plan area and existing and proposed bicycle routes, paths, trails, and lanes in Westminster, consistent with the 2010 Bicycle Master Plan. The US 36 Commuter Bike Trail, connecting Denver with Boulder, will pass along the eastern edge of the site in the Colorado Department of Transportation (CDOT) right-of-way. This Plan makes provisions for feeder connections from downtown and the surrounding neighborhoods with a network of bike lanes and bicycle-friendly streets as well as direct connections from 88th and 92nd avenues.

In order to facilitate biking in downtown, new streets are designed as multi-modal; slow design traffic speeds allow bicyclists and automobiles to share the road. Along Eaton Street, the "Green Boulevard," and Central Parkway, on-street bike lanes provide enhanced north-south and east-west bike facilities. Along Harlan Street, new on-street bike lanes connect 88th Avenue to 92nd Avenue. These lanes could connect north to planned bicycle lanes along Westminster Boulevard and south to bicycle trails and commuter ways in the City of Arvada.

The City of Westminster's 2010 Bicycle Master Plan includes a grade-separated Class I Bikeway along 88th Avenue. This bikeway will be evaluated in conjunction with a road diet of 88th Avenue. This road diet would reduce the number of travel lanes, widen sidewalks, improve crosswalks, and provide enhanced bicycling facilities (see the discussion in multi-modal access below). Once bike lanes or a bike trail is installed on 88th Avenue, bike lanes within the Specific Plan area should connect to this route.

Pedestrian Movement

The Plan provides an extensive network of pedestrian-friendly streets. All streets within the downtown are designed for slow-moving vehicular traffic, provide short crossing distances across travel lanes, and short distances between crosswalks.

Universal Design

Streets and sidewalks are vital in providing access for people of all ages and varying physical abilities. Therefore, new streets should be designed to meet the needs of all users. These may include older people, children, people in wheelchairs, parents with strollers, people with vision or hearing impairments, and those needing other assistive devices. To accommodate this broad range of users, streets should be designed with the intent to reduce barriers and provide assistive devices where appropriate. Street designs shall comply with the most recent State and federal accessibility guidelines and design practices.

Pedestrian Safety

Downtown's new streets are designed for slow traffic speeds with the intent of making them more pedestrian-friendly and safer

to cross. Design features include narrow traffic lanes, parallel on-street parking and curb bulb-outs at street corners. Beyond the street design, the design of each intersection and crosswalk will play an important role in making the crossing of travel lanes safe. In designing and locating crosswalks, the following criteria should be considered: visibility, sight lines, mid-block crossings in strategic locations, and marked crosswalks.

Enhanced Trail Loop

Downtown provides a variety of green spaces that encourage physical activity and recreation. To encourage walking and running, this Plan designates a trail loop that connects several green spaces and is easily accessible from anywhere within the Plan area. The trail loop is outlined in Figure 3-1. Where the trail loop runs along a street, a widened sidewalk serves as the pedestrian trail.

Eaton Street and Central Parkway

On Eaton Street and Central Parkway a wide median provides a linear green space. While these green spaces will accommodate a variety of activities, they also serve as enhanced pedestrian connections connecting from one end of the site to the other, both from north to south and from east to west.

Multi-Modal Access

Currently, the design of 88th and 92nd avenues reflects a focus on accommodating high volumes of vehicular traffic. Bicycle facilities are absent and pedestrian crossings are few and far between. Pedestrians must cross seven to eight traffic lanes with a total curb-to-curb distance of one hundred feet or more. As the urban downtown develops, demand for pedestrian and bike access to the site will

increase. Strategies to improve this access at 88th and 92nd avenues include consideration of a "road diet" for both streets.

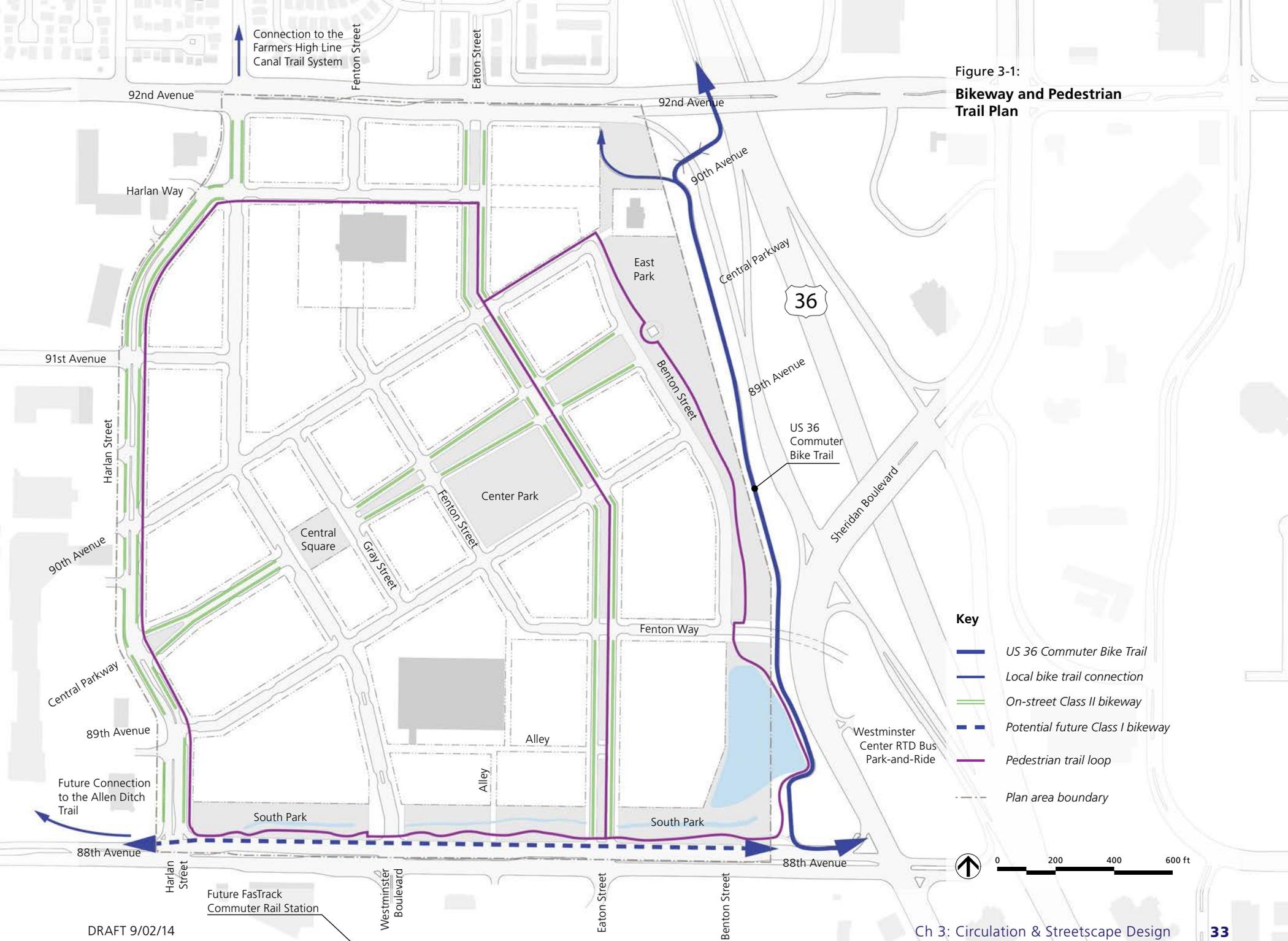
"Road diets" are strategic changes to the street cross section that reduce the area of the street devoted to vehicle travel. A road diet can be implemented after an analysis of traffic patterns identifies less-utilized vehicle lanes in a roadway that can be converted into bicycle and pedestrian facilities. Typical measures employed by a "road diet" include reduction or narrowing of travel lanes, addition of raised medians to provide mid-street pedestrian refuges, introduction of on-street bike lanes or parallel parking, and expansion of existing sidewalks. All of these measures serve to reduce crossing distances and enhance bicycle and pedestrian safety.

The City will evaluate opportunities for a road diet on both 88th and 92nd avenues. Any such measures will be weighed against the continued capacity of these streets to accommodate future vehicular traffic. Potential road diet street improvements could include:

- Reduction or elimination of right turn and acceleration lanes on both sides of 92nd Avenue, thereby creating the opportunity for improved sidewalks on the north side as well as improved landscaping and identity on both street sides.
- Opportunity for bike lanes on 88th Avenue as well as a wider median that would provide pedestrian refuges at crossings and enhance pedestrian safety by reducing the crossing distance.

Additional measures and improvements may also be explored.

Figure 3-1:
Bikeway and Pedestrian
Trail Plan



- Key**
-  US 36 Commuter Bike Trail
 -  Local bike trail connection
 -  On-street Class II bikeway
 -  Potential future Class I bikeway
 -  Pedestrian trail loop
 -  Plan area boundary



3.4 STREET NETWORK

This Plan provides a hierarchy of street types that creates distinct environments. The existing arterial streets, 88th and 92nd avenues, border the Plan area to the south and north, respectively. Westminster Boulevard, which currently terminates at the north edge, will be extended through the site and together with Eaton Street will accommodate north-south movement. Local streets and public alleys complete the street network; special design provisions are made for Gray Street where higher levels of pedestrian activity are anticipated, for Benton Street that fronts a major green space, and for Central Parkway that is envisioned as a green connection from East Park to Harlan Street.

The street design strategy anticipates that a mix of uses will line the streets though it does not prescribe or predict exactly what uses those will be. Instead, it provides positive, human-scaled environments, the success of which is largely independent of the uses fronting a particular street. Street design will also contribute to downtown's identity as a decidedly urban space. Wide sidewalks provide ample space for pedestrian activity; curb extensions ease roadway crossings; street trees and landscaping enhance downtown's beauty; and dedicated amenity zones, streetlights, ample seating, and other street furniture ensure functionality of the street environments.

Street Types and Design

This section depicts the proposed street and sidewalk sections within the Plan area. Figure 3-2 provides a key to the individual street type sub-sections. The street types and

sections are designed to accommodate the expected volumes of traffic associated with new development in downtown. A traffic analysis was prepared as part of the development of the Specific Plan and is included in the Appendix.

88th Avenue and 92nd Avenue

At 88th Avenue only the northern portion of the street and at 92nd Avenue only the southern portion of the street lies within the Plan boundary. This Plan only proposes changes to their sidewalks, but not the roadways. New sidewalk designs will improve the pedestrian environment and sidewalk sections are provided for these two streets. Enhanced pedestrian crossings should be placed where Westminster Boulevard and Eaton Street meet 88th Avenue as well as at the intersection of Westminster Boulevard with 92nd Street.

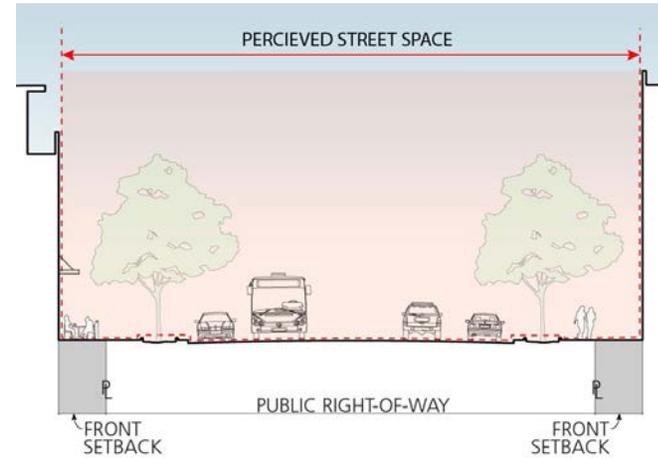
Private Development

When considering the design of public streets, it is important to recognize that the design of private front setbacks significantly contributes to the success of the overall street design. This is because the perceived street space is the area between the building faces on either side of the street (see the Perceived Street Space illustration). Hence, the street types provide the basis for frontages, which encompass the dimension of front setbacks as well as the character of the setbacks themselves. Private development shall adhere to this section's provisions for front setbacks.

Bicycling in Downtown

This Plan proposes a simple approach to bicycling in downtown: every street is designed to safely accommodate bike traffic. The majority of the new streets are designed for

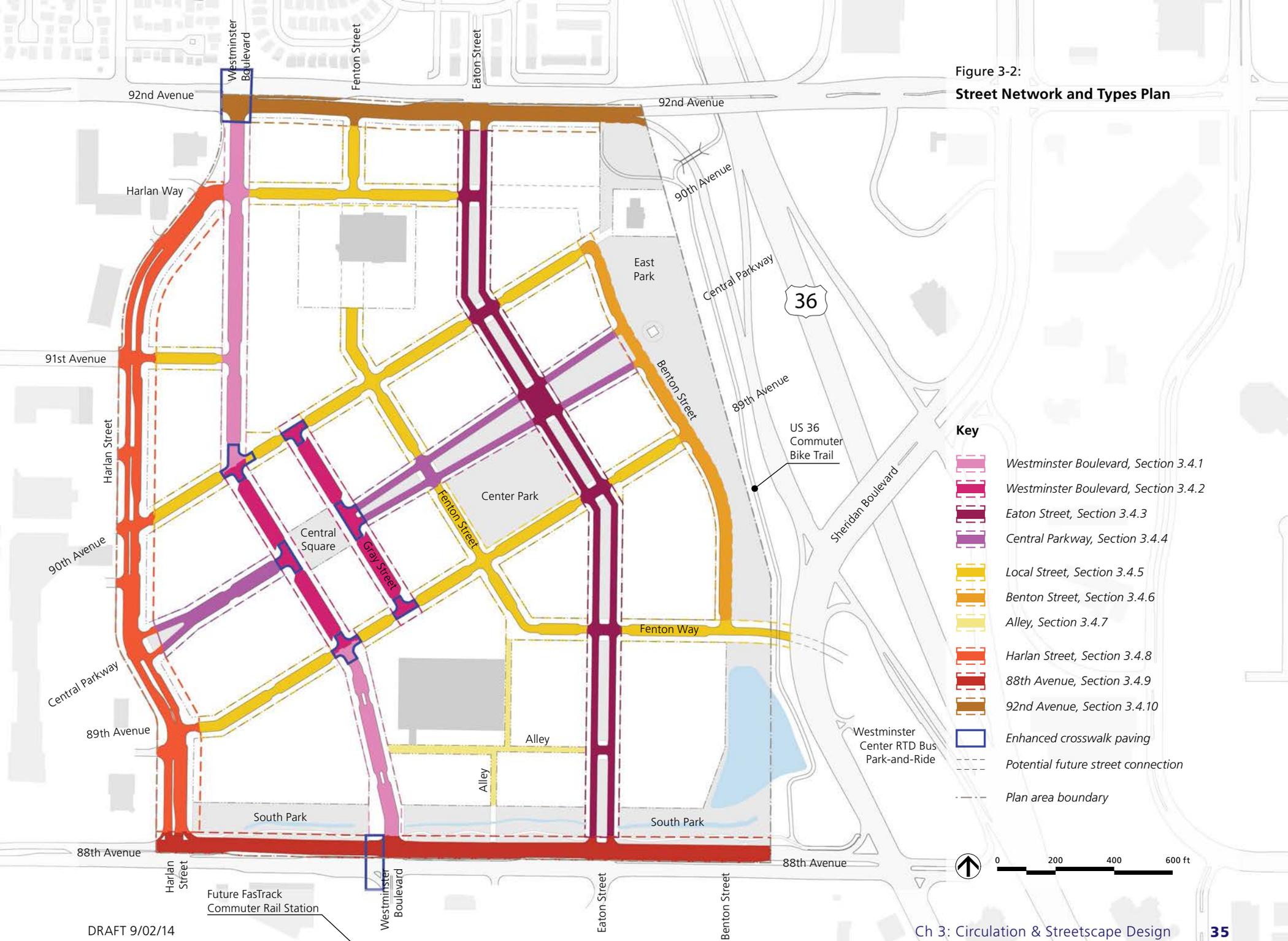
slow-moving traffic with one travel lane in each direction. Bicycle lanes are also provided on key streets including Eaton Street, Harlan Street and Central Parkway. Along all other streets in the downtown, bicycles and vehicles will share the roadway.



Perceived Street Space

Front setbacks are part of the overall perceived street space.

Figure 3-2:
Street Network and Types Plan



- Key**
- Westminister Boulevard, Section 3.4.1
 - Westminister Boulevard, Section 3.4.2
 - Eaton Street, Section 3.4.3
 - Central Parkway, Section 3.4.4
 - Local Street, Section 3.4.5
 - Benton Street, Section 3.4.6
 - Alley, Section 3.4.7
 - Harlan Street, Section 3.4.8
 - 88th Avenue, Section 3.4.9
 - 92nd Avenue, Section 3.4.10
 - Enhanced crosswalk paving
 - Potential future street connection
 - Plan area boundary

3.4.1 Westminster Boulevard Outside the Retail Core

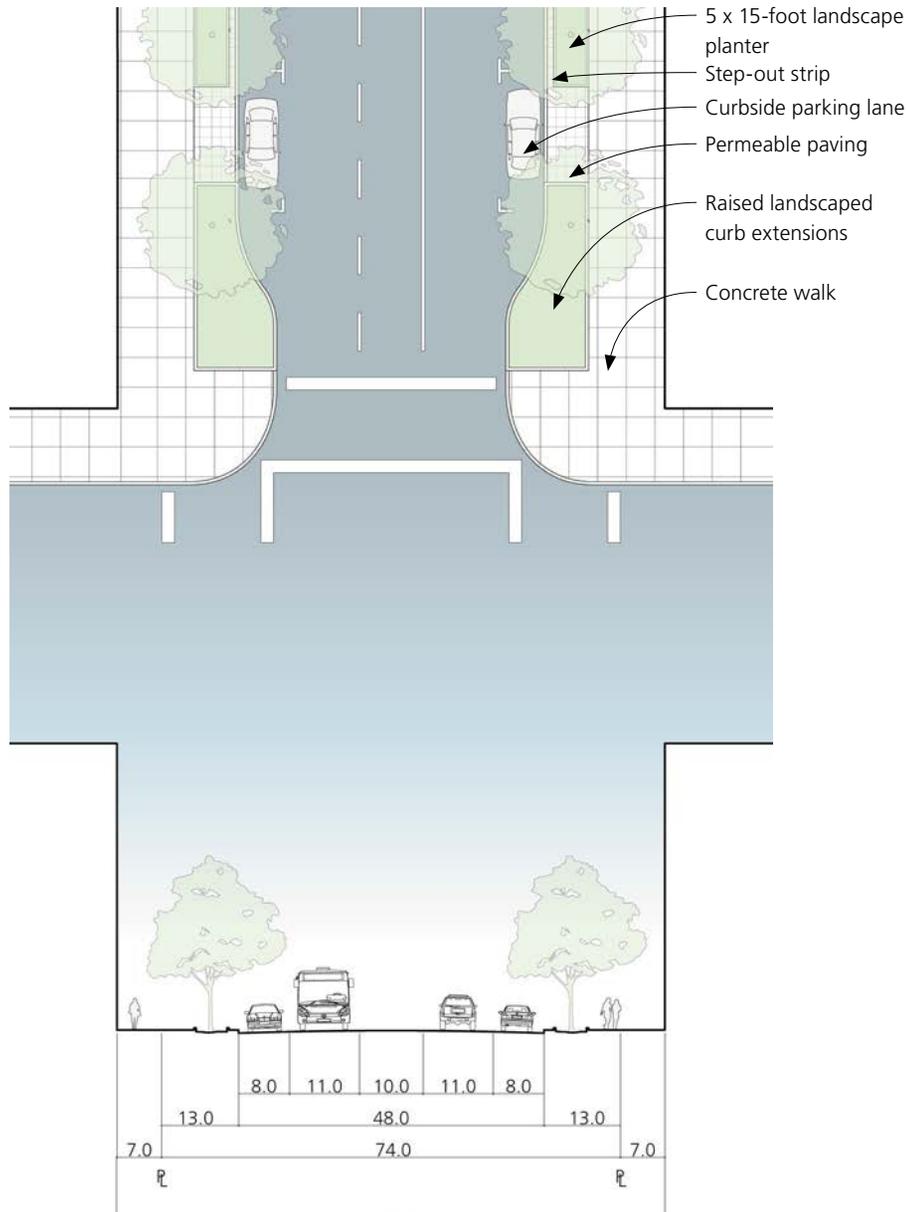
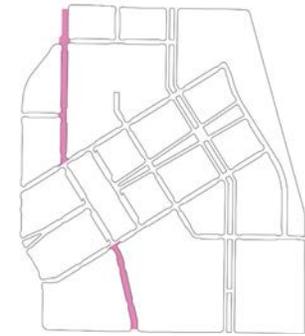


Figure 3-3: Westminster Boulevard Street Design Diagram

SW: sidewalk incl. parkway; P: parking lane; L: travel lane; TL: turning lane



Key Plan

A. Design Intent

As the primary north-south connections in the new downtown's street grid, this street type anticipates higher volumes of pedestrians and vehicular traffic than on other streets within the Plan area. The design provides for a street environment with slow traffic speeds that are safe for pedestrians, drivers, and bicyclists alike. The roadway has one shared use travel lane in each direction that accommodates bicycles and a center turning lane. Wide sidewalks provide room for pedestrians and outdoor dining. Curb extensions reduce the crossing distance for pedestrians at intersections and provide room for sidewalk amenity areas. Landscaped planters with street trees and seasonal plantings enrich the identity of this important new street.

B. Street Design

Street design shall be in conformance with Figure 3-3.

C. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). Step-out strips and sidewalk areas located in between landscape planters shall be paved with permeable pavers (see Section 3.5.1).

D. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Landscape Planters. Landscape planters shall be five feet wide and 15 feet long and enclosed by a raised concrete curb, four inches wide and four inches high. Landscape planters shall be placed so that they match the street tree spacing, typically 35 feet on center.
3. Curb Extensions. Raised landscape planters at seat wall height shall extend into curb extensions and separate sidewalk amenity zones from the roadway (see Section 3.5.4). Planters shall incorporate benches or seating into the design.



Landscaped Curb Extensions

Seasonal plantings brighten the streetscape experience.



Landscaped Curb Extensions

Curb extensions are planted with colorful flowers and ornamental trees.



Amenity Areas in Front Setbacks

Dining and other outdoor furniture is allowed in front setbacks.

E. Streetlights

Streetlights shall be per Section 3.5.3.

F. Street Furniture

Street furniture within the public right of way shall be per Section 3.5.2. Curb extensions should be furnished with pedestrian or bicycle amenities or both (see Section 3.5.4).

G. Front Setbacks

1. Paving. Front setbacks shall be paved with poured, scored concrete to match the public sidewalk (see Section 3.5.1).
2. Landscaping. Small shrubs and trees in movable pots are permitted. Landscaped planters or yards are not permitted.
3. Furniture. Movable signs and outdoor displays in conformance with sign standards and guidelines of Section 4.7 are permitted. All such furniture shall be approved by the City. Outside of business hours, furniture shall be removed from the setback and stored.

H. Outdoor Dining

Outdoor dining is permitted within the front setback adjacent to the operating ground-floor use. Outdoor dining areas shall be located entirely within the front setback. They shall be enclosed by removable barriers when barriers are required by State licensing regulations.

Furniture for outdoor dining shall be approved by the City. Outside of business hours furniture should be stored indoors. Alternatively, it may be stacked and secured at the back of the setback area.

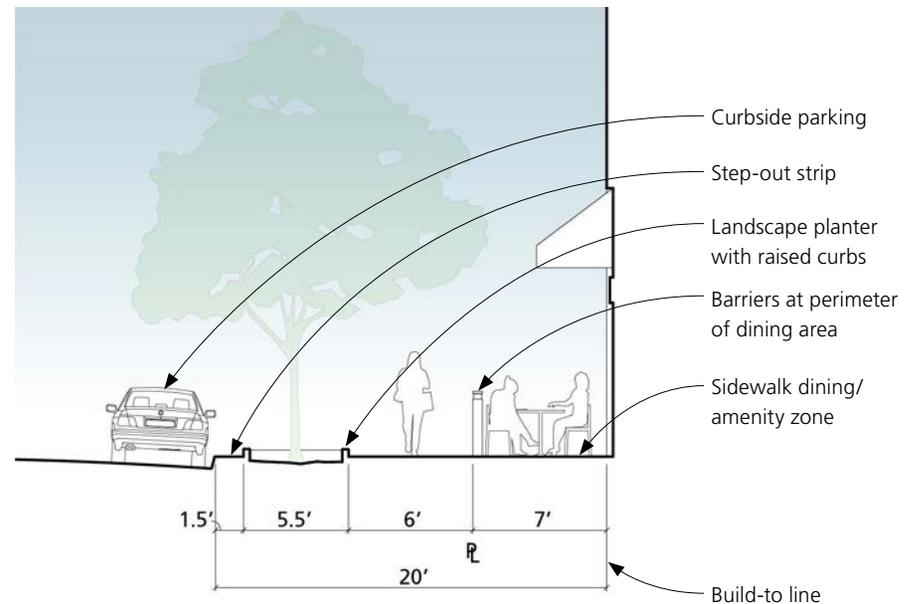


Figure 3-4: Westminster Boulevard Sidewalk

The sidewalk dining zone is located in line with landscape planters leaving room for additional furnishings at the building front.

3.4.2 Westminster Boulevard and Gray Street

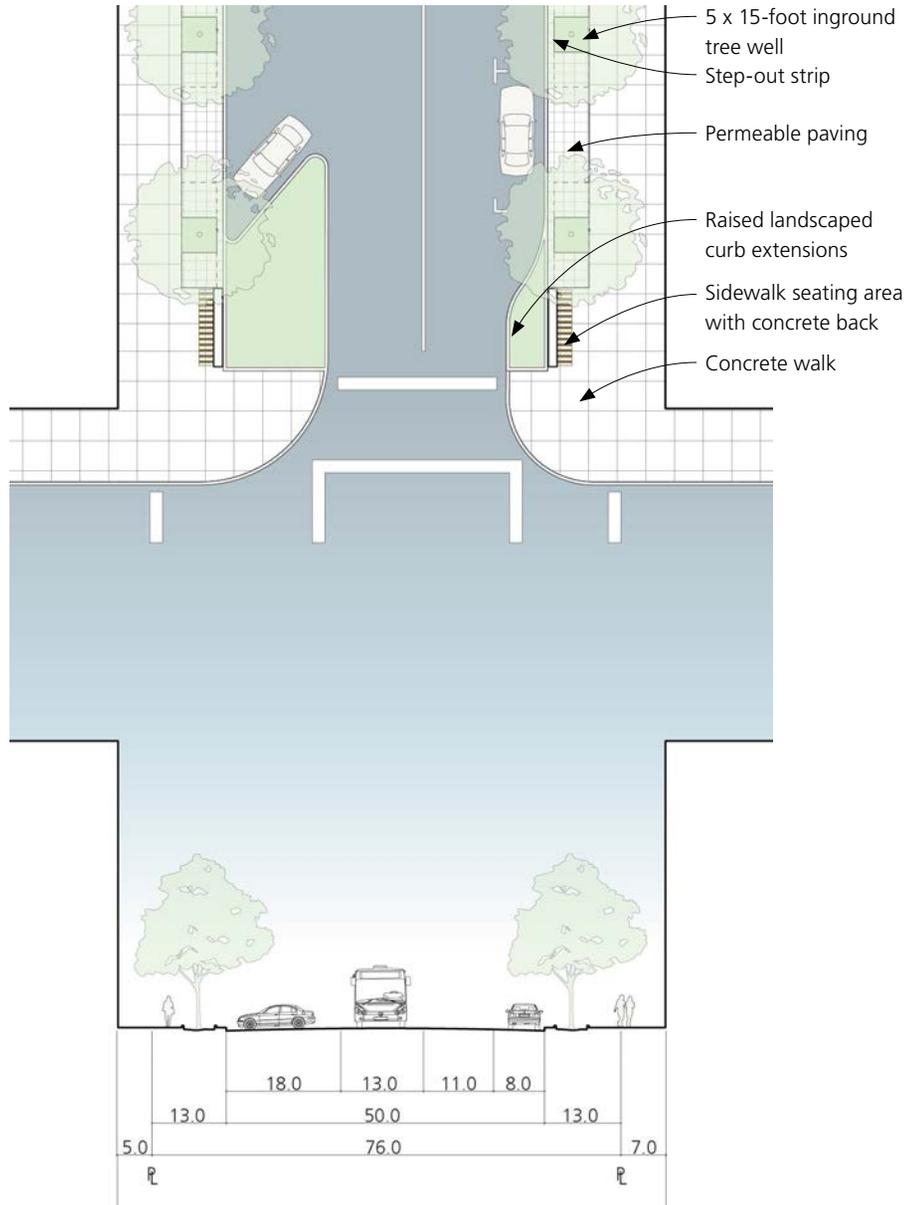
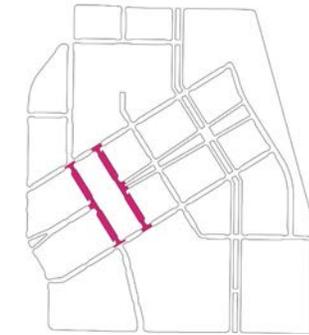


Figure 3-5: Westminster Boulevard and Gray Street Street Design Diagram

SW: sidewalk incl. parkway; P: parking lane; L: travel lane; TL: turning lane



Key Plan

A. Design Intent

This street type modifies the Westminster Boulevard type at the retail core where a high volume of pedestrians is anticipated. The roadway is designed for slow traffic speeds with bikes in mixed flow traffic lanes. It has one travel lane in each direction. Curbside parking is provided on both sides of the street with one side arranged as angled parking for added convenience. Wide sidewalks provide room for pedestrians, amenity areas, shop displays, and outdoor dining. Curb extensions reduce the crossing distance at intersections and provide room for amenity areas.

B. Street Design

Street design shall be in conformance with Figure 3-5.

C. Decorative Street Paving

Gray Street between 90th and 91st Avenues and the intersections of Westminster Boulevard with 90th Avenue, Central Parkway, and 91st Avenue shall be paved in scored integral color concrete. Pedestrian crosswalks shall be

emphasized with a variation in concrete color or pattern.

D. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). Step-out strips and sidewalk areas located in between landscape planters shall be paved with permeable pavers (see Section 3.5.1).

E. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Landscape Planters. Landscape planters shall be five feet wide and 15 feet long and enclosed by a concrete curb, four inches wide and four inches high. Landscape planters shall be placed so that they match the street tree spacing.
3. Curb Extensions. Landscape planters shall extend into curb extensions and separate sidewalk amenity zones from the roadway (see Section 3.5.4).



Wide, Active Sidewalks

Wide sidewalks and paved front setbacks provide ample space for pedestrian activity.



Inground Planter Under Construction

A 5x15-foot tree planter sits below a suspended pavement system that will support sidewalk paving once construction is complete. (Photo location: Denver, CO)



Inground Planter with Paving Installed

In this image, the pervious paving has been installed above the pavement suspension system. The usable sidewalk area has increased significantly.

F. Streetlights

Streetlights shall be per Section 3.5.3.

G. Street Furniture

Street furniture shall be per Section 3.5.2. Curb extensions should be furnished with pedestrian or bicycle amenities or both (see Section 3.5.4).

H. Front Setbacks

1. Paving. Front setbacks shall be paved with poured, scored concrete to match the public sidewalk (see Section 3.5.1).
2. Landscaping. Small shrubs and trees in movable pots are permitted. Landscaped planters or yards are not permitted.
3. Furniture. Movable signs and outdoor displays in conformance with sign standards and guidelines of Section 4.7 are permitted. All such furniture shall be approved by the City. Outside of business hours, furniture shall be removed from the setback and stored.

I. Outdoor Dining

Outdoor dining is permitted within the front setback adjacent to the operating ground-floor use. Outdoor dining areas shall be located entirely within the front setback. They shall be enclosed by removable barriers when barriers are required by State licensing regulations.

Furniture for outdoor dining shall be approved by the City. Outside of business hours furniture should be stored indoors. Alternatively, it may be stacked and secured at the back of the setback area.

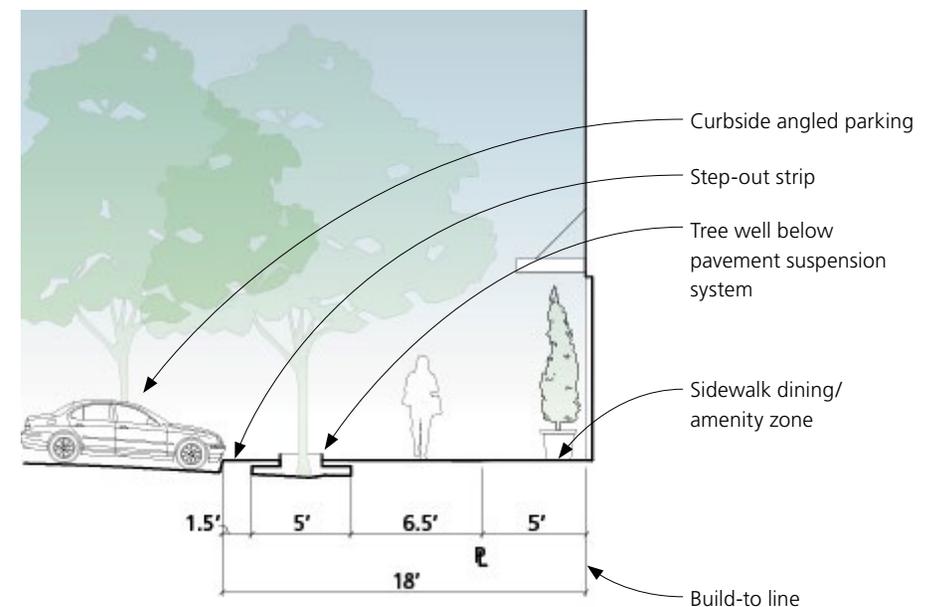


Figure 3-6: Westminster Boulevard and Gray Street Sidewalk at Angled Parking

In areas with convenient angled parking the sidewalk amenity zone is reduced by two feet in depth. At sidewalks with parallel parking the sidewalk design is the same as Section 3.2.1.

3.4.3 Eaton Street "Green Boulevard"

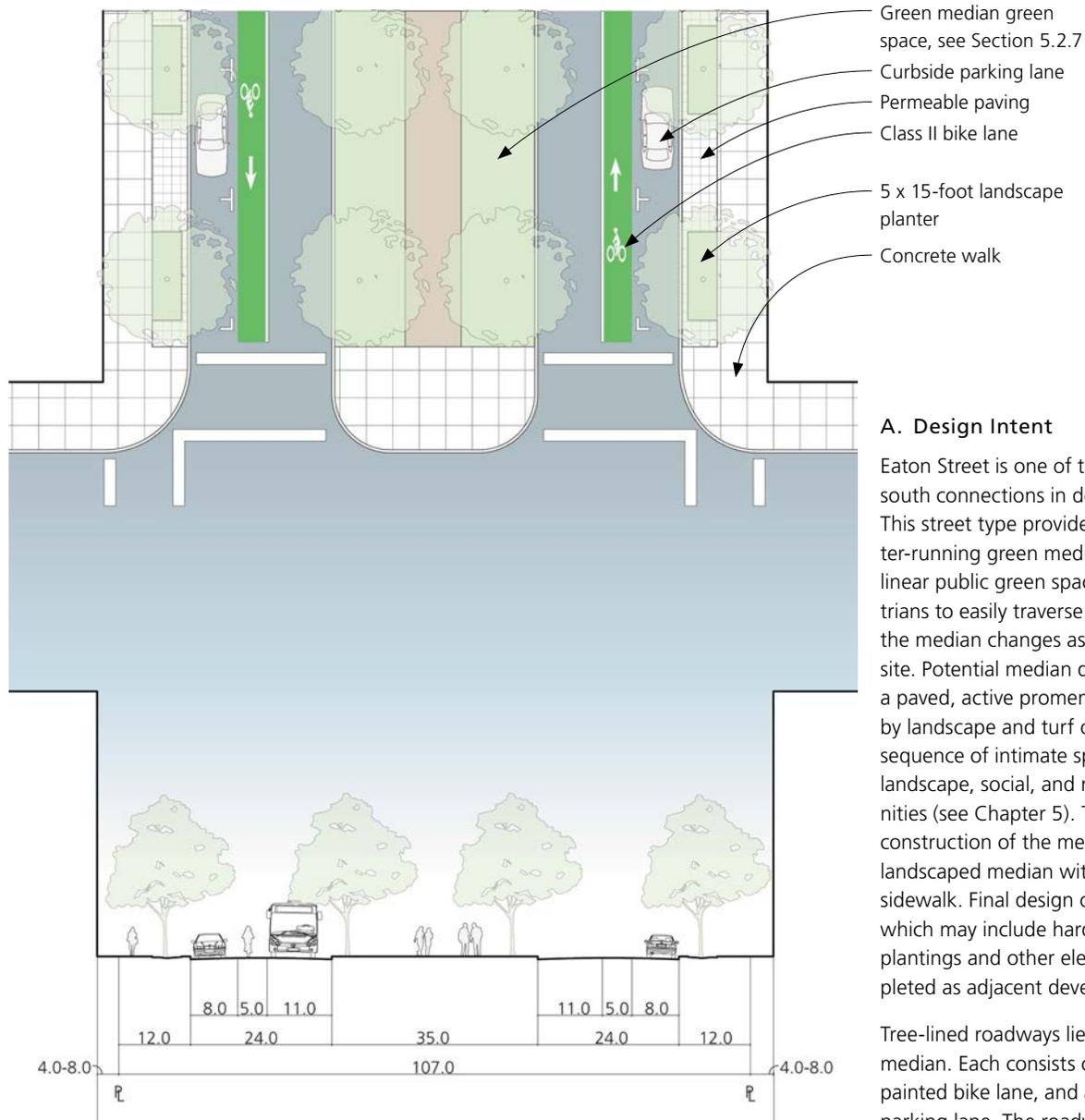


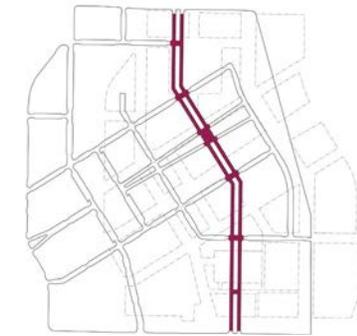
Figure 3-7: Eaton Street Design Diagram

SW: sidewalk incl. parkway; P: parking lane; B: bike lane; L: travel lane; M: median

A. Design Intent

Eaton Street is one of two primary north-south connections in downtown's street grid. This street type provides for a wide, center-running green median that functions as a linear public green space and allows pedestrians to easily traverse the site. The design of the median changes as it passes through the site. Potential median designs could include a paved, active promenade; a walk framed by landscape and turf on either side; and a sequence of intimate spaces with varying landscape, social, and recreational opportunities (see Chapter 5). The initial design and construction of the median will comprise a landscaped median with turf, trees and a sidewalk. Final design of the median spaces, which may include hardscape, additional plantings and other elements, will be completed as adjacent development occurs.

Tree-lined roadways lie on either side of the median. Each consists of one travel lane, a painted bike lane, and an on-street parallel parking lane. The roadways are intended for slow traffic speeds on a very pedestrian-friendly street. Landscaped planters with street trees and seasonal plantings enrich the



Key Plan

identity of this important street.

B. Street Design

Street design shall be per Figure 3-7.

C. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). Step-out strips and sidewalk areas located in between landscape planters shall be paved with permeable pavers (see Section 3.5.1).

D. Median

Median design shall be per green space standards (see Chapter 5).

E. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19). Whenever possible, street trees at the sidewalks and the median shall be placed four abreast.
2. Landscape Planters. Planters shall be five feet wide by 15 feet long and flush with the finished sidewalk. Landscape planters



Green Space Median

Urban green spaces for strolling, meeting, and other activities.



Bike Lanes

A split roadway has a travel lane, a bike lane, and curb-side parking.



Landscape Planters

Landscape planters line the roadway. Low, sturdy tree-pit guards can protect trees and plants.

shall be placed to match the street tree spacing, typically 35 feet on center.

3. Plantings. Landscape planters shall be planted with robust grasses or low shrubs or hedges.

G. Streetlights.

Streetlights shall be per Section 3.5.3. Additional pedestrian lights shall be placed in the green median (see Section 5.2.7).

H. Street Furniture

Street furniture shall be per Section 3.5.2.

I. Front Setbacks

1. Paving. Notwithstanding the *frontage type* standards of Section 4.3, front setbacks at ground-floor retail or commercial uses shall be paved with poured, scored concrete to match the public sidewalk (see Section 3.5.1). Front setbacks at ground-floor residential uses shall be paved or landscaped.

2. Landscaping. Small shrubs and trees in movable pots are permitted. *Stoops* and

similar encroachments may extend into the front yard.

3. Furniture. Movable signs and outdoor displays in conformance with sign standards and guidelines of Section 4.7 are permitted. All such furniture shall be approved by the City. Outside of business hours, furniture shall be removed from the setback and stored.

J. Outdoor Dining

Outdoor dining is permitted within the front setback adjacent to the operating ground-floor use. Outdoor dining areas shall be located entirely within the front setback. They shall be enclosed by removable barriers when barriers are required by State licensing regulations.

Furniture for outdoor dining shall be approved by the City. Outside of business hours furniture should be stored indoors. Alternatively, it may be stacked and secured at the back of the setback area.

Outdoor dining may also be permitted in the green median with City approval.

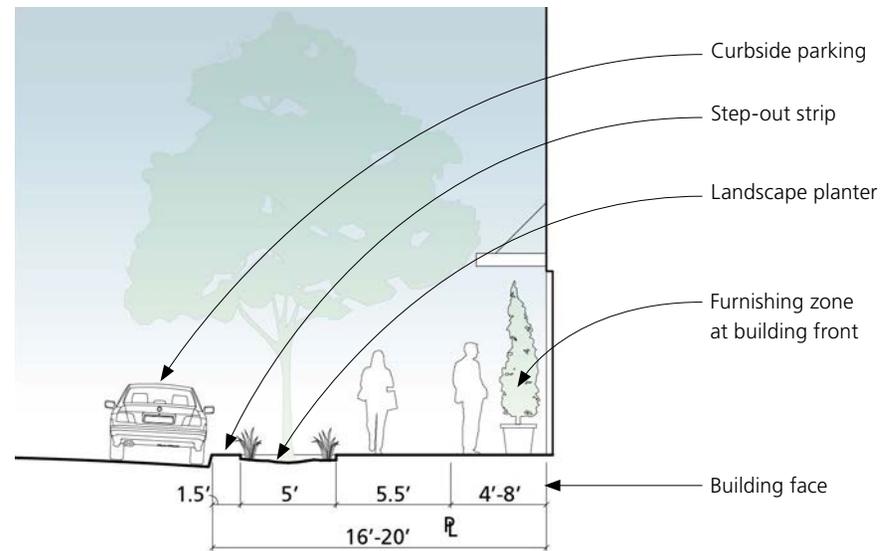


Figure 3-8: Typical Eaton Street Sidewalk

At ground-floor retail and commercial uses the building furnishing zone is paved and increases the effective width of the pedestrian walk. At residential uses, the setback can be paved, landscaped, or both.

3.4.4 Central Parkway

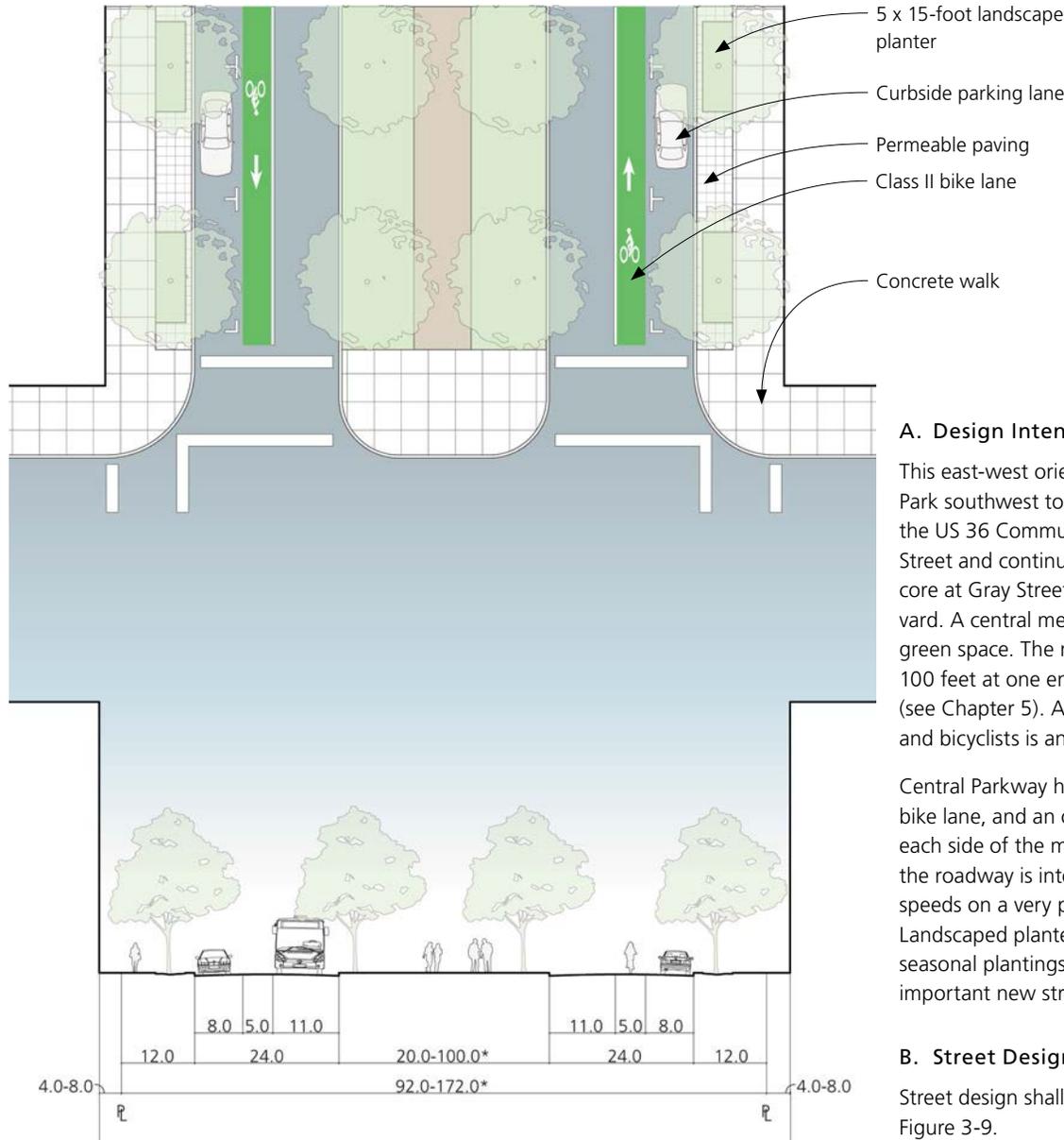


Figure 3-9: Central Parkway Design Diagram
 SW: sidewalk incl. parkway; P: parking lane; L: travel lane

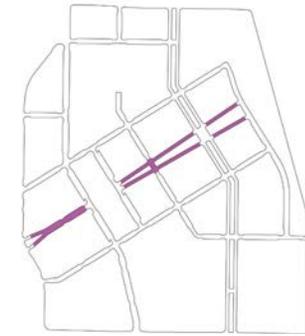
A. Design Intent

This east-west oriented street runs from East Park southwest to Harlan Street. It connects the US 36 Commuter Bike Trail with Eaton Street and continues directly into the retail core at Gray Street and Westminster Boulevard. A central median functions as a linear green space. The median width varies from 100 feet at one end to 20 feet at the other (see Chapter 5). A high volume of pedestrians and bicyclists is anticipated.

Central Parkway has one travel lane, a painted bike lane, and an on-street parking lane on each side of the median. Like Eaton Street, the roadway is intended for slow traffic speeds on a very pedestrian-friendly street. Landscaped planters with street trees and seasonal plantings enrich the identity of this important new street.

B. Street Design

Street design shall be in conformance with Figure 3-9.



Key Plan

C. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1).

D. Median

Median design shall be per green space standards (see Chapter 5). Each portion of the median should be designed to connect with and accommodate expanded civic uses along the parkway. Civic spaces include Center Park and the Central Square.

E. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Landscape Planters. Planters shall be five feet wide by 15 feet long and flush with the finished sidewalk. Landscape planters shall be placed to match the street tree spacing, typically 35 feet on center.
3. Plantings. Landscape planters shall be planted with robust grasses or low shrubs or hedges.

F. Streetlights

Streetlights shall be per Section 3.5.3.

G. Street Furniture

Street furniture shall be per Section 3.5.2.

H. Front Setbacks

1. Paving. Notwithstanding the *frontage type* standards of Section 4.3, front setbacks at ground-floor retail or commercial uses shall be paved with poured, scored concrete to match the public sidewalk (see Section 3.5.1). Front setbacks at ground-floor residential uses shall be paved or landscaped.
2. Landscaping. Small shrubs and trees in movable pots are permitted. *Stoops* and similar encroachments may extend into the front yard.
3. Furniture. Movable signs and outdoor displays in conformance with sign standards and guidelines of Section 4.7 are permitted. All such furniture shall be

approved by the City. Outside of business hours, furniture shall be removed from the setback and stored.

I. Outdoor Dining

Outdoor dining is permitted within the front setback adjacent to the operating ground-floor use. Outdoor dining areas shall be located entirely within the front setback. They shall be enclosed by removable barriers when barriers are required by State licensing regulations.

Furniture for outdoor dining shall be approved by the City. Outside of business hours furniture should be stored indoors. Alternatively, it may be stacked and secured at the back of the setback area.

Outdoor dining may also be permitted in the green median with City approval.



Pedestrian-Oriented Median

A pedestrian path in the median connects East Park to the retail core.



Bike Lanes

A split roadway has a travel lane, a bike lane, and curb-side parking.

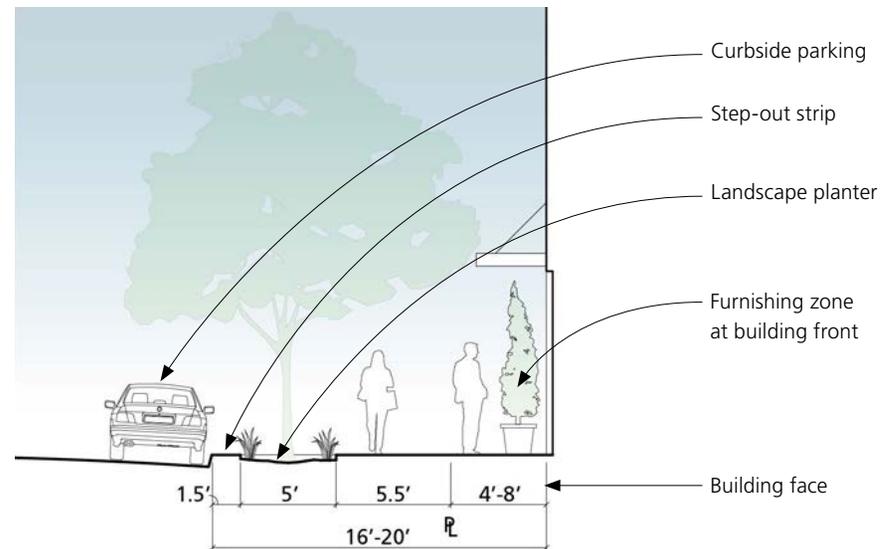


Figure 3-10: Typical Central Parkway Sidewalk

At ground-floor retail and commercial uses the building furnishing zone is paved and increases the effective width of the pedestrian walk. At residential uses the setback can be paved, landscaped, or both.

3.4.5 Local Street

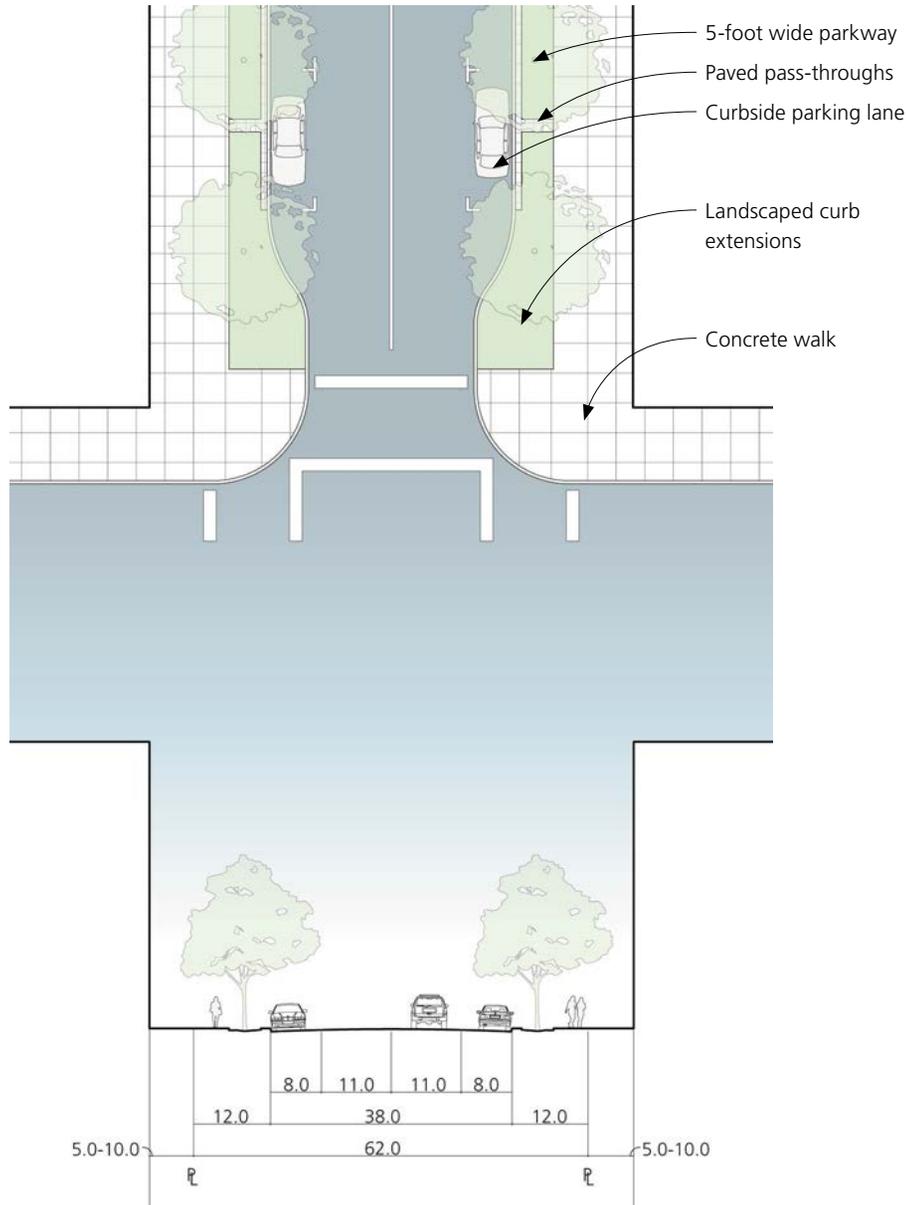


Figure 3-11: Local Street Design Diagram
 SW: sidewalk incl. parkway; P: parking lane; L: travel lane;

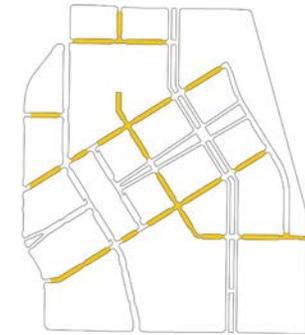
A. Design Intent

The local street type serves development throughout the downtown Plan area. It is intended for pedestrians, bicycles, and slow-moving vehicles to access various uses and destinations. The roadway is designed for slow traffic speeds with shared use traffic lanes that accommodate bicycles. It has one travel lane in each direction and curbside parking lanes on both sides. Sidewalks provide ample room for pedestrians. Streets are landscaped with street trees and continuous parkways with paved pass-throughs to the sidewalk.

Setback standards allow buildings to be set between five and ten feet from the property line. This variation makes for a livelier street frontage. The setback areas are paved or landscaped per the building *frontage type* standards.

B. Street Design

Street design shall be in conformance with Figure 3-11.



Key Plan

C. Sidewalk Paving

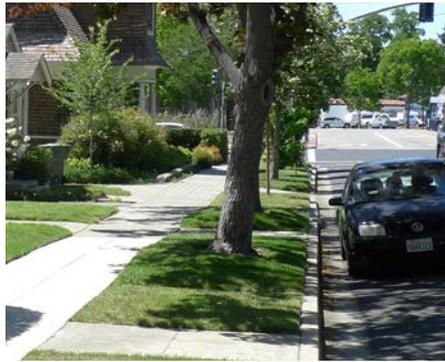
The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). Step-out strips and walks in parkways shall be paved with permeable pavers (see Section 3.5.1).

D. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Parkway. Parkway shall be five feet wide continuous planters and flush with the finished sidewalk. Where determined appropriate by the City, parkways shall be designed as infiltration planters and appropriate plant material shall be selected (see Section 3.5.9). Where infiltration planters are not feasible parkways shall be landscaped with irrigated turf. Paved walks shall provide access from the sidewalk to step-out strips and shall be placed at regular intervals not to exceed 40 feet.

E. Streetlights

Streetlights shall be per Section 3.5.3.



Parkway with Turf

Option 1 - parkways are planted with turf and irrigated.



Parkway with Infiltration

Option 2 - parkways are designed as infiltration planters and collect stormwater runoff.

F. Street Furniture

Street furniture shall be per Section 3.5.2.

G. Front Setbacks

Front setbacks shall be paved or landscaped in conformance with the building *frontage type* standards (see Section 4.4).

H. Outdoor Dining

Outdoor dining may be permitted with City approval. The outdoor dining area shall immediately adjoin a *storefront cafe* frontage and shall be located entirely within the front setback. It shall be enclosed by removable barriers when barriers are required by State licensing regulations.

Furniture for outdoor dining shall be approved by the City. Outside of business hours furniture should be stored indoors. Alternatively, it may be stacked and secured at the back of the setback area.

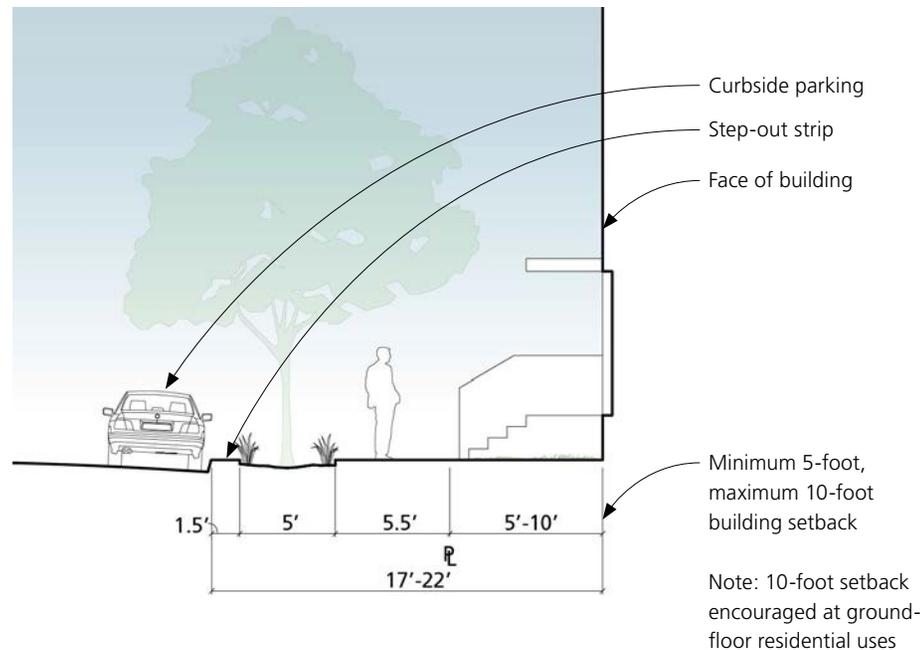


Figure 3-12: Local Street Sidewalk Section

A deeper setback allows stoops or similar permitted building elements that enliven the sidewalk experience.

3.4.6 Benton Street

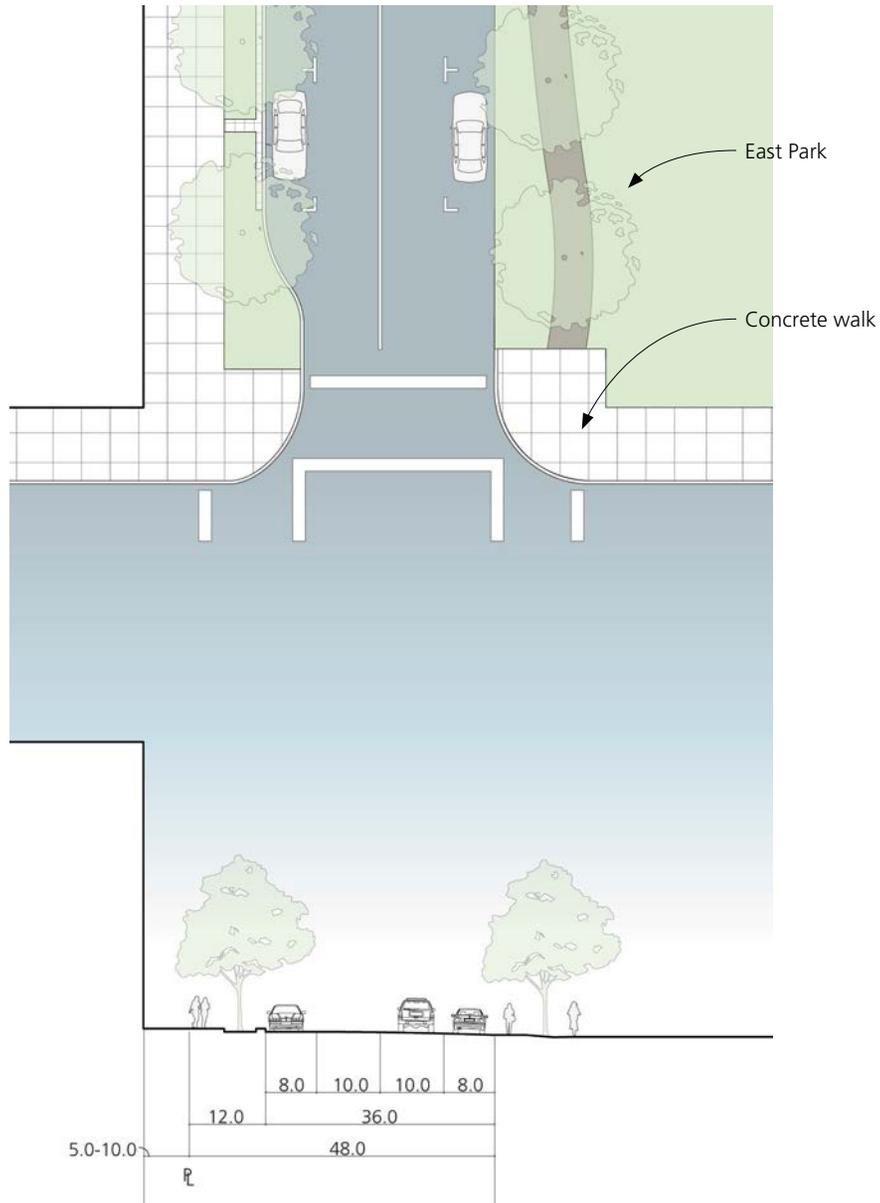


Figure 3-13: Benton Street Design Diagram
SW: sidewalk incl. parkway; P: parking lane; L: travel lane



Key Plan

A. Design Intent

Benton Street has a continuous park front along East Park. The street design anticipates frequent pedestrian and bike crossing of the roadway. Therefore, the roadway is designed for slow traffic speeds with bikes in shared use lanes. Benton Street has one travel lane in either direction and curb-side parking lanes on both sides. Building-side sidewalks provide ample room for pedestrians. Streets are landscaped with street trees and continuous parkways with paved pass-throughs to the sidewalk.

At the park there is the opportunity to drain stormwater runoff from the road to drain into a bioswale. In the bioswale, the water infiltrates into the ground. This option should be evaluated in the park design for the East Park.

B. Street Design

Street design shall be in conformance with Figure 3-13.

C. Sidewalk Paving

Building-side sidewalks shall be paved with poured, scored concrete (see Section 3.5.1).

Step-out strips and walks in parkways shall be paved with permeable pavers (see Section 3.5.1). Park-side sidewalks shall be paved with poured, scored concrete (see Section 3.5.1). Curbs shall be flush type.

D. Landscape

1. **Street Trees.** At the building-side sidewalk street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. **Parkways.** At the building-side sidewalk parkways shall be five feet wide continuous planters and flush with the finished sidewalk. Where determined appropriate by the City, parkways shall be designed as infiltration planters and appropriate plant material shall be selected. Where infiltration planters are not feasible parkways shall be landscaped with irrigated turf. Paved walks shall provide access from the sidewalk to step-out strips and shall be placed at regular intervals not to exceed 40 feet.
3. **Bioswale (option).** A continuous sidewalk adjacent bioswale could be located in East



Bioswale at Park Edge

A bioswale captures stormwater runoff, filters it, and then allows it to infiltrate into the ground.

Park. Paved or soft surface walks shall provide access across the bioswale. They should be placed at regular intervals not to exceed 60 feet, at intersections, and at key crossings.

E. Streetlights

Streetlights shall be per Section 3.5.3.

F. Street Furniture

Street furniture shall be per Section 3.5.2. Bollards should be considered for the east side of the street to prevent vehicles from entering the sidewalk.

G. Front Setbacks

Building-side front setbacks shall be paved or landscaped in conformance with the building *frontage type* standards (see Section 4.4).

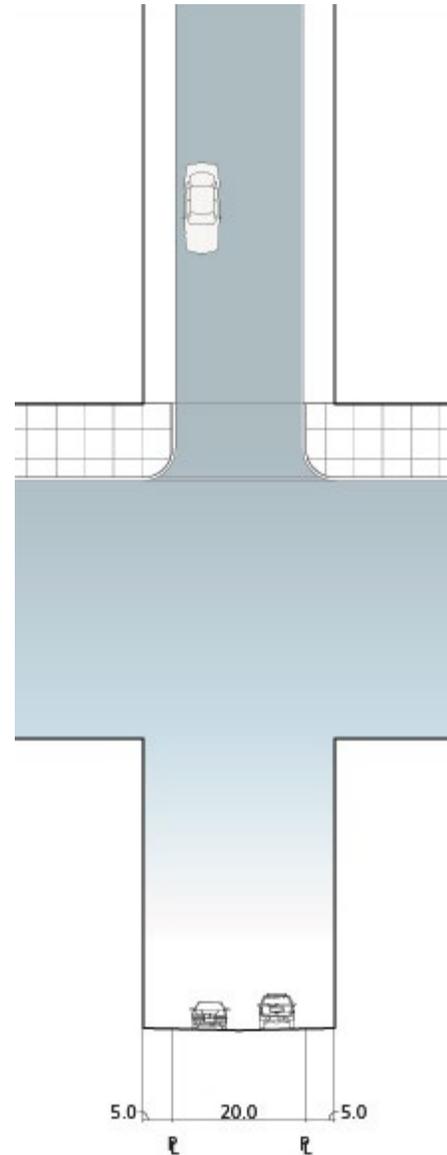
H. Outdoor Dining

Outdoor dining is not permitted.

3.4.7 Alley (Public or Private)



Key Plan



A. Design Intent

While the alley street type primarily provides access to the interior of larger blocks, it is also intended for opportunities for active uses along alley fronts. These uses could include restaurants, gallery spaces, or similar store-front uses. Alley widths provide a two-way drive lane for very slow moving traffic mixing with pedestrians and bicyclists. A five-foot wide, raised sidewalk provides additional safety for pedestrians.

B. Street Design

Street design shall be in conformance with Figure 3-15.

C. Setback Paving

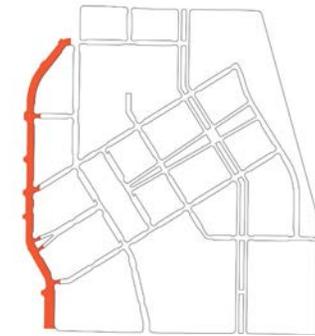
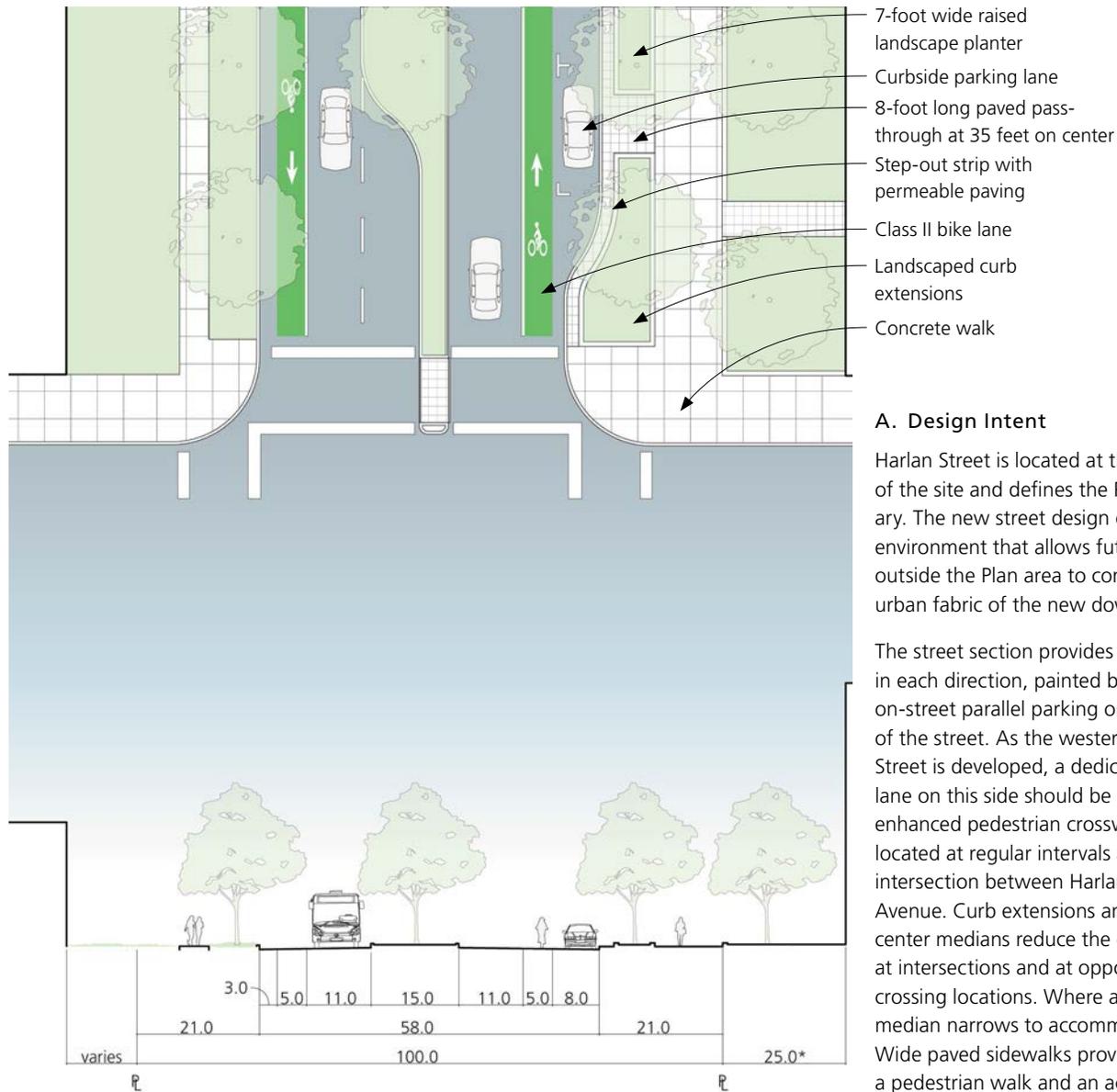
5-foot setbacks shall be paved with poured concrete.

D. Outdoor Dining

Outdoor dining is not permitted.

Figure 3-14: 20-Foot Alley Design Diagram

3.4.8 Harlan Street



Key Plan

A wide 25-foot deep front setback on the east side of Harlan Street preserves existing mature trees. This setback should be increased between 90th and 91st avenues so that an extensive cluster of existing trees may be retained as new development fills in the site. The front setback design, addition of street trees, and the location of building entrances should accommodate existing trees. Front yard setbacks are planted; a raised curb at the property line separates them from the sidewalk.

B. Street Design

Street design shall be in conformance with Figure 3-15.

C. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). The eastern sidewalk accommodates the Enhanced Pedestrian Trail Loop identified in Figure 3-20 with a wider sidewalk. Step-out strips and walks in parkways shall be paved with permeable pavers (see Section 3.5.1).

Figure 3-15: Harlan Street Design Diagram
 SW: sidewalk incl. parkway; P: parking lane; L: travel lane

D. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19). Placement should be modified to accommodate existing trees.
2. Parkway. Parkway shall be seven-foot-wide continuous planters and flush with the finished sidewalk. Where determined appropriate by the City, parkways shall be designed as infiltration planters and appropriate plant material shall be selected. Paved walks shall provide access from the sidewalk to step-out strips and shall be placed at regular intervals not to exceed 40 feet.
3. Curb Extensions. Parkway shall extend into curb extensions. Where sidewalk amenity zones are located in curb extensions landscape planters should be placed between the roadway and the amenity zone to provide a barrier to traffic (see Section 3.5.4).

E. Streetlights

Streetlights shall be per Section 3.5.3.

F. Street Furniture

Street furniture shall be per Section 3.5.2. Wherever appropriate, curb extensions should be furnished with pedestrian or bicycle amenities or both (see Section 3.5.4).

G. Front Setbacks

Front setbacks shall be landscape planters bounded by a raised curb. Raised landscape planters enclosed by a wall no more than 24 inches in height, measured from the adjacent sidewalk grade, are encouraged. Planters shall be planted with decorative plants which may include small trees and low shrubs. Walks to building entries shall be paved (see Section 3.5.1). A service walk no more than three feet in width may be located in between the building face and the landscape planter. Existing mature trees located in the front setback shall be preserved to the extent possible; the setback design may vary from Figure 3-16 as necessary to preserve the trees.

H. Outdoor Dining

Outdoor dining is not permitted.

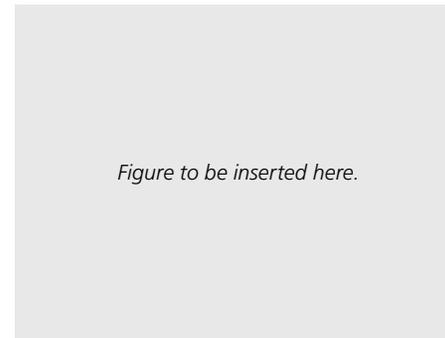


Figure to be inserted here.



Raised Landscape Planter

A raised landscape planter separates the sidewalk from the roadway.

Existing Trees

Existing trees on the east side of Harlan Street should be preserved.

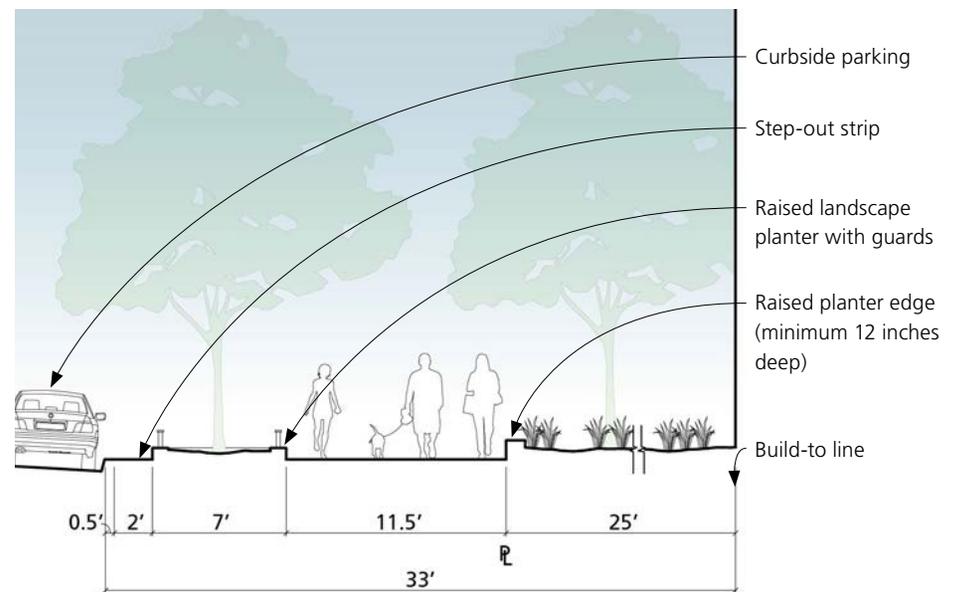


Figure 3-16: Harlan Street Sidewalk with Raised Planters and Landscaped Setback

A wide pedestrian walk serves to complete the pedestrian trail loop that circumvents the Plan area.

3.4.9 88th Avenue Sidewalk Design



Key Plan

A. Design Intent

The northern street edge of 88th Avenue is the southern face of the new downtown. Along 88th Avenue the street design retains the existing meandering eight-foot-wide sidewalk. The roadway design remains unchanged, but the possibility for a “road diet” (reduction of the roadway width) could be explored (see Section 3.3).

An existing tree-lined green is expanded to comprise South Park, which separates the roadway and sidewalk from the development blocks. The historic Allen Ditch runs within the 125-foot-wide park, which is lined by mature cottonwood trees. The design retains the existing trees, ditch and sidewalk along 88th Avenue.

In South Park a new pedestrian walk frames the northern edge of the green space. The walk varies in width and adjoins the property lines of the development parcels to the north. Here, permitted setbacks provide the opportunity for a series of outdoor dining areas, terraces, and landscaped areas lining the park promenade.

B. Sidewalk Design

Northern sidewalk design shall be in conformance with Figure 3-17.

C. Sidewalk Paving

The existing sidewalk shall remain. The northern sidewalk shall be paved with scored concrete.

D. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Parkway. The existing parkway and green space shall remain. Where existing parking lots are removed and the green space area is expanded, these areas shall be landscaped.
3. Existing Trees. Existing cottonwood trees shall be evaluated for their health and replaced where necessary to ensure the tree canopy is maintained throughout the parkway as older trees reach the end of their lifespan.

E. Streetlights

Streetlights shall be per Section 3.5.3.

F. Street Furniture

Street furniture shall be per Section 3.5.2.

G. Front Setbacks

1. Landscaping and Paving. Front setbacks shall be paved or landscaped in conformance with the building *frontage type* standards (see Section 4.4). Raised terraces are permitted.
2. Terraces. Raised terraces located between the publicly accessible walk and the building front are permitted. Raised terraces shall be no more than 30 inches in height, measured from the adjacent walk, and shall be accessible from the walk.
3. Furniture. Movable signs and outdoor displays in conformance with sign standards and guidelines of Section 4.7 are permitted. All such furniture shall be approved by the City. Outside of business hours, furniture shall be removed from the setback and stored.

4. Outdoor Lighting. Outdoor lighting shall be located along the property line and shall be per Section 3.5.3.

H. Outdoor Dining

Outdoor dining is permitted in active use zones located between the publicly accessible walk and the building front. Outdoor dining shall immediately adjoin the operating ground-floor space. They shall be enclosed by movable barriers when required by State licensing.



Existing Sidewalk

An existing 8-foot wide sidewalk meanders along the north side of 88th Avenue.



Existing Allen Ditch

The historical Allen Ditch is lined with mature cottonwood trees.



Outdoor Dining on Terrace

Terraces overlooking the green space can enhance active ground-floor uses.

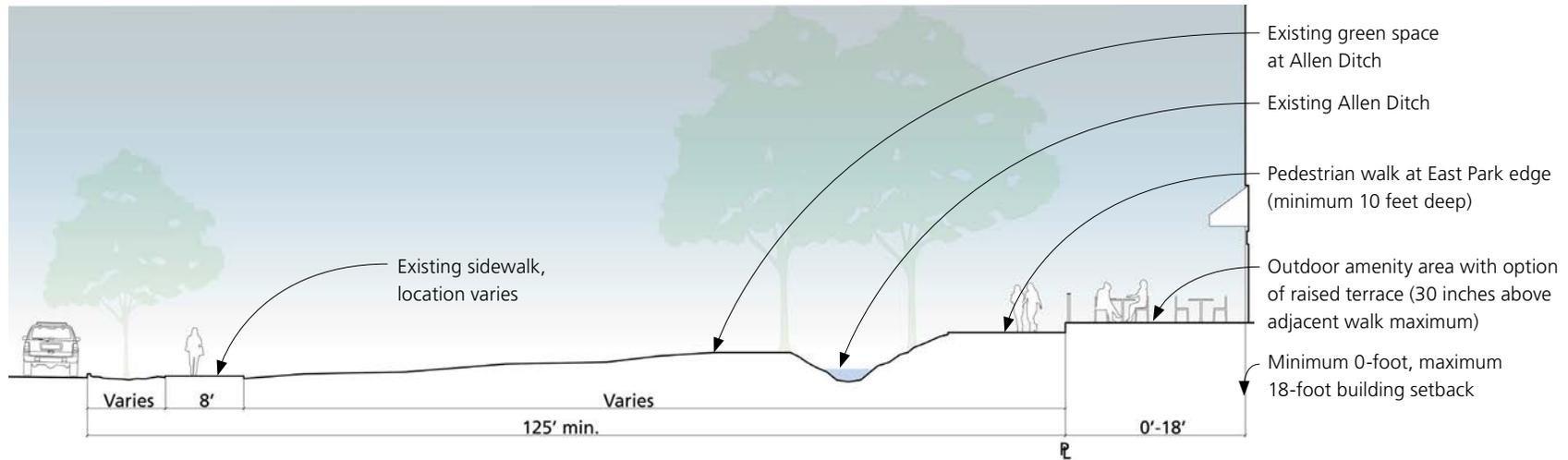


Figure 3-17: 88th Avenue Sidewalk Section

The 88th Avenue sidewalk runs through South Park.

3.4.10 92nd Avenue



Key Plan

A. Design Intent

The southern street edge of 92nd Avenue, a multi-lane arterial with fast-moving traffic, is the northern face of the new downtown. The existing roadway configuration provides significant challenges for designing an urban edge. The sidewalk design creates a safe pedestrian-oriented environment at frontages lining 92nd Avenue. A continuous parkway with street trees separates a wide sidewalk from the curbside travel lane. Additionally, improvements to the northern edge of the street should be pursued, as mentioned in Section 3.3. Finally, a 15-foot landscaped setback buffers ground-floor uses facing this busy street.

The northern street edge of 92nd Avenue, although outside of the immediate Plan area, will play an integral part in accessing downtown and the US 36 commuter bike trail from the north. Potential modifications to the street right-of-way, as discussed in Section 3.3, will improve sidewalk and streetscape conditions on this northern edge. Improvements should include addition of a planted

edge with consistent street trees, landscaping, lighting, and wayfinding elements to underline 92nd Avenue as a gateway and to improve pedestrian and bicycle safety along the northern edge of the street.

B. Sidewalk Design

Southern sidewalk design shall be in conformance with Figure 3-18.

C. Sidewalk Paving

The sidewalk shall be paved with poured, scored concrete (see Section 3.5.1). A 2.5-foot-wide area behind the curb shall be paved with poured, scored concrete.

D. Landscape

1. Street Trees. Street trees shall be planted in conformance with the street tree plan (see Figure 3-19).
2. Parkway. Parkway shall be continuous planters, at minimum the same width as existing which is nine to 12 feet—and flush with the finished sidewalk. Wherever

possible, parkways shall be designed as infiltration planters and appropriate plant material shall be selected.

E. Streetlights

Streetlights shall be per Section 3.5.3.

F. Street Furniture

Street furniture shall be per Section 3.5.2.

G. Front Setbacks

Front setbacks shall be at-grade or raised landscape planters enclosed by a wall no more than 18 inches in height, measured from the adjacent sidewalk grade. Planters shall be planted with decorative plants which may include small trees and low shrubs. Walks to building entries and outdoor dining areas shall be paved (see Section 3.5.1). A service walk no more than three feet in width may be located in between the building face and the landscape planter.

H. Outdoor Dining

Outdoor dining is permitted in front setbacks in conjunction with *storefront café* frontages. Outdoor dining areas shall not occupy more than 50 percent of any building front. They shall be enclosed by movable or fixed barriers when required by State licensing.



Landscape Planters

A raised landscape planter provides a subtle edge between the public and private realms.

Vertical Green

Medium-height shrubs placed at intervals create a buffer between ground-floor uses and the busy street.

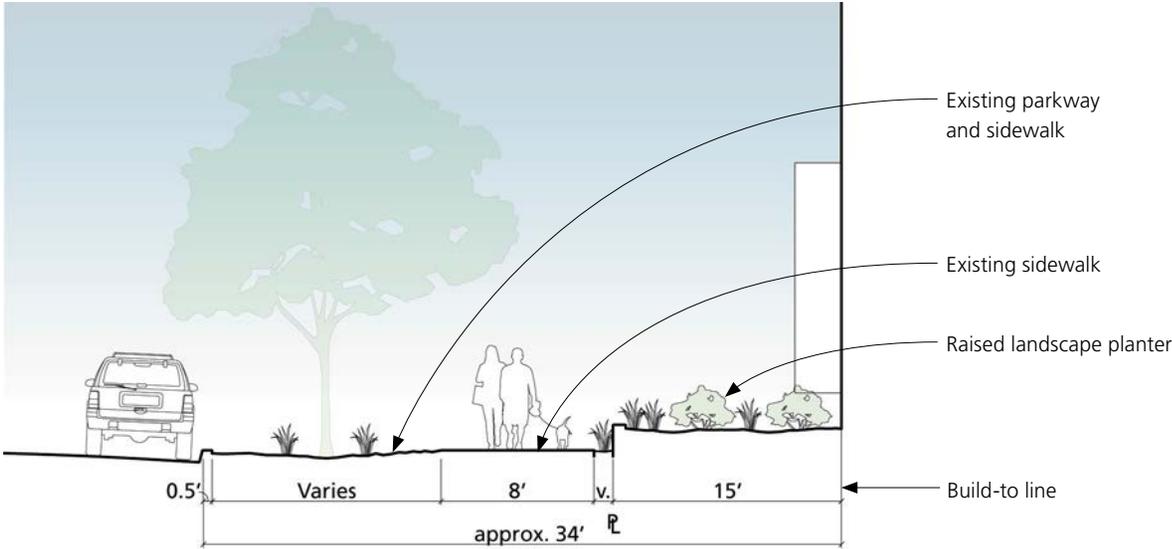


Figure 3-18: Sidewalk Section With Raised Landscape Planter

This diagram shows a raised landscape planter occupying the 15-foot front setback. The raised planter is optional.

3.5 STREETScape DESIGN ELEMENTS

While the street types lay out the dimensional and functional requirements for downtown's streets, this section provides a series of material, street furniture, and palettes that inform the street design. These standards and guidelines function much like standard details and specifications. This section promotes a design unity that supports the Plan area identity while allowing for options and variety responsive to location-specific needs. Palettes presented in this section provide an overall design intent and may be added to or modified based on City direction. The streetscape design elements place a particular emphasis on elements that enhance the pedestrian's and cyclist's experience in the downtown.

This section covers the following sub-sections:

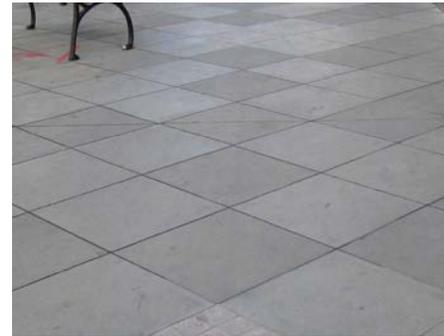
- Section 3.5.1: Paving palette
- Section 3.5.2: Street furniture palette
- Section 3.5.3: Streetlighting palette
- Section 3.5.4: Sidewalk amenity area configurations
- Section 3.5.5: Outdoor dining guidelines
- Section 3.5.6: Parkway and landscape planter types
- Section 3.5.7: Street tree plan and palette

3.5.1 Paving Standards

Paving materials shall be consistent with the intent of this paving palette.

A. Private Development

Where required by the street type standards of Section 3.4 paved areas in front setback shall conform to this section.



Poured, Scored Concrete

Natural gray concrete with saw-cut score lines



Decorative Concrete Crosswalk

Aggregate, color, and saw-cut lines create a durable decorative crosswalk.



Permeable Pavers Option 1

8x8 square pavers



Permeable Pavers Option 1

Pavers set in herringbone pattern



Decomposed Granite

Decomposed granite area enclosed by concrete.

3.5.2 Street Furniture

Street furniture, seating, waste receptacles, lighting, bike racks, bollards, and similar devices, significantly enhance the usability of the public realm. A consistent theme of materials and design language in street furniture selections enhances the sense of identity throughout the downtown area.

The street furniture presented in this section provides an initial palette of appropriate street furniture selections. The selections are based on a clean aesthetic with a high degree of functionality that maintains a respect for the human scale. The City may approve additional items that complement this selection and expand the palette.

A. Furniture as Public Art

The integration of public art into the street furniture is highly encouraged. For public art elements there shall be flexibility in regard to the design language, materials, textures, shapes, and colors.

B. Private Development

Private development shall follow the guidance and design intent provided in this section, in particular where furniture is placed within front setbacks and on on-site open space that is accessible from the public realm.



Bench

LandscapeForms Parc Vue 72" bench, backed with end arms, silver metallic



Waste Receptacle

LandscapeForms Parc Vue side-opening receptacle, silver metallic



Recycling Receptacle

LandscapeForms Parc Vue top-opening receptacle with blue recycling top



Bike Rack

LandscapeForms Flo bike rack



Bollard Option A

City Squared semi-dome top bollard



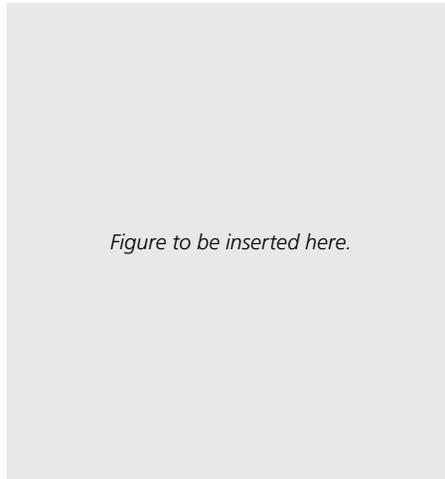
Bollard Option B

LandscapeForms Annapolis bollard

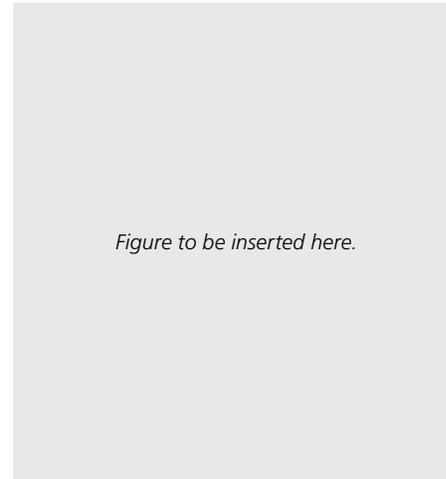
3.5.3 Streetlight Palette

Streetlights shall conform to the specifications of this Streetlight palette.

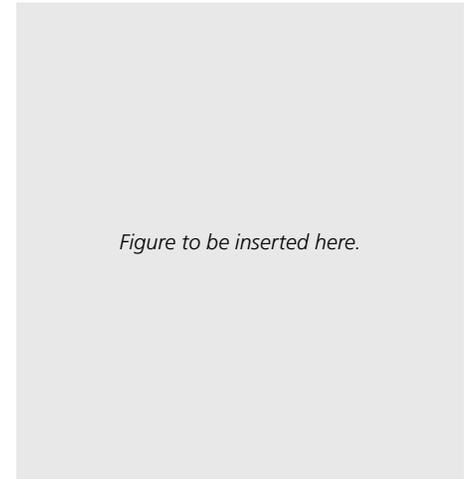
Street lighting levels shall meet City standards.



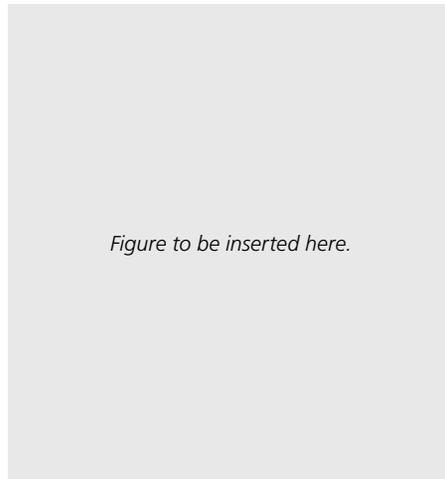
Street Light
Caption



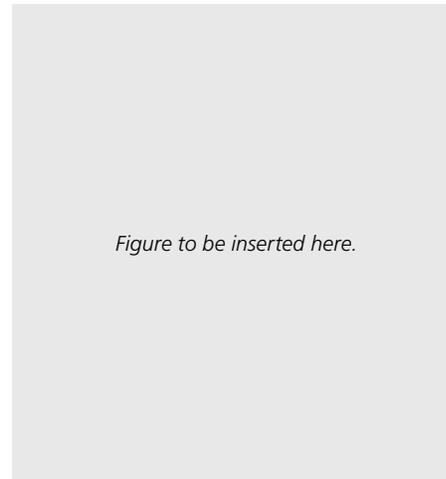
Street Light
Caption



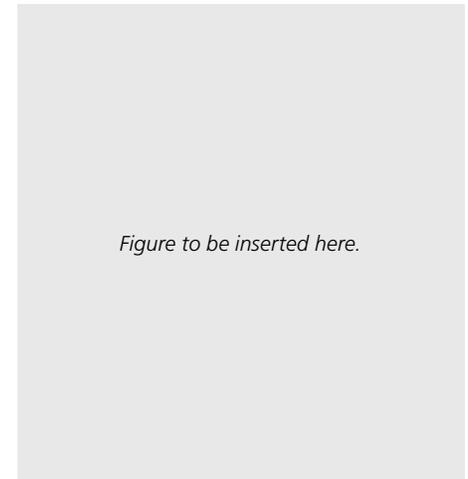
Street Light
Caption



Street Light
Caption



Street Light
Caption



Street Light
Caption

3.5.4 Sidewalk Amenity Area Guidelines

Sidewalk amenity areas are publicly accessible areas, typically located within the public right-of-way, that enhance the enjoyment of the public realm. Sidewalk amenity areas cater to both cyclists and pedestrians and provide features such as benches, bike racks, or locations for waste receptacles.

Amenity areas in private developments shall follow the guidelines of this section.

A. Seating Areas

1. Purpose. Seating areas are furnished areas that allow pedestrians to rest, casually interact with others, or enjoy their surroundings. Various seating areas with ample seating should be located throughout the Plan area.
2. Furniture. Seating areas should include one or more benches. Wherever possible, trash receptacles should be located in close proximity to or within seating areas.
3. Location. Seating areas should be located outside the primary walk areas either in line with landscape planters or in curb extension areas.
4. Configuration. Seating placed in line with landscape planters or tree wells should face the sidewalk; where multiple benches are provided, benches may face each other. Seating in curb extension areas should be separated from traffic lanes with a landscape planter or a raised barrier. Seats should face the sidewalk or other seats and be incorporated into raised planters. Generally seats should not face traffic or parking lanes. Trash receptacles in seating

areas should be located conveniently to both seating and the sidewalk.

B. Bike Parking Areas

1. Purpose. Bike rack areas are a point of transition from bicycle to pedestrian movement. Bike racks should provide a visible and therefore safe place for temporary bicycle parking.
2. Furniture. Bike rack areas as well as more secure bike parking areas should include a number of bike racks for safe attachments of bikes.
3. Location. Bike rack areas should be located in line with landscape planters or in curb extensions. Secure parking should be located in concert with other storage or parking services or areas, such as in a parking garage. Locations should be chosen convenient to various destinations within the Plan area.
4. Configuration. Bike racks should be positioned to provide maneuvering room and with sufficient clearance to traffic lanes, parked cars, and sidewalks. Wherever possible, bike racks should be placed perpendicular to the street to maximize bike storage space. Where less space is available, bike racks can be mounted at an angle or parallel to traffic lanes. In curb extensions, landscape planters or similar buffers should separate bike racks from moving traffic.

C. Trash Receptacle Areas

1. Purpose. Well-placed trash receptacle areas reduce the amount of litter discarded in streets.

2. Furniture. Wherever possible both a general waste and a recycling bin should be provided.
3. Location. Locations near intersections, seating areas, and areas with high volumes of foot traffic are preferable.
4. Configuration. Trash receptacle areas should be located convenient to pedestrian traffic just outside the main walk area.



Seating Area

Benches and landscaping transform curb extensions into amenity zones along the sidewalk.



Bike Racks Area

Curb extensions can also accommodate bike racks and trash receptacles providing additional convenience to pedestrians and cyclists.



Seating and Landscape Area

A bench is attached to a raised landscape planter.

3.5.5 Outdoor Dining Guidelines

Outdoor dining may be regulated by State and City licensing requirements and codes, depending on the type of beverages served and location. This section provides additional guidelines for outdoor dining areas located in public rights-of-way or in private front setbacks. These guidelines supplement the provisions of the street type standards of this chapter.

A. Purpose

Outdoor dining areas allow patrons of restaurants, cafés, or similar establishments to enjoy the outdoor environment. These guidelines ensure that the design of outdoor dining areas supports the overall vision for the downtown.

B. Design

The design materials and colors used for chairs, tables, lighting and other fixtures including umbrellas and awnings shall be generally consistent both with the architectural style and colors used on the building façade.

C. Furniture

Furniture should be of durable materials that withstand the effects of weathering. Powder-coated or vinyl-coated metal furniture is encouraged; the use of light-weight plastics and wood (other than teak) are not permitted.

D. Dining Area Enclosures

When provided, outdoor dining enclosures should complement the overall building and streetscape design. Enclosures should be

designed as semi-permanent barriers and be removable, as by use of recessed sleeves and posts or by wheels which can be locked into place. Enclosures should be easy to clean and maintain.

The maximum height of opaque enclosures shall be three foot six inches, measured from the adjacent sidewalk. Transparent wind-screen attachments may extend the enclosure height by two additional feet. Connections or elements between dining area enclosures and overhead awnings or similar structures are not permitted.

Where State licensing does not require dining area enclosures and the establishment limits outdoor seating to a single row of tables and seat abutting the wall of the establishment, no barrier shall be required.

E. Umbrellas

The use of removable umbrellas in outdoor dining areas is permitted. Umbrellas shall maintain a minimum clearance of seven feet above the adjacent floor level.



Sidewalk Dining at the Building Front

Outdoor dining area with high-quality enclosure.



Sidewalk Cafe Seating

A small building-side outdoor seating area at a storefront café.

3.5.6 Parkway And Landscape Planter Palette

Plantings and street trees bring green into the cityscape. This section identifies five types of landscape planters that could be appropriate in the Plan area:

1. Parkway with turf or other ground cover
2. Parkway with stormwater infiltration
3. Flush landscape planter
4. Landscape planter with raised curbs
5. Landscape planter with tree pit guards

Refer to the street section design diagrams in Section 3.4 to determine appropriate locations for each planter type.



Parkway with Turf

A continuous parkway is planted with turf. Step-out strips and paved walks at regular intervals allow pedestrians to cross the parkway without stepping into the plantings.



Flush Landscape Planter

A landscape planter is set flush with the adjacent sidewalk. Grasses or low hedges visually bound the planter and protect the soils from pedestrian traffic.



Parkway with Infiltration

A parkway set flush with the sidewalk allows stormwater runoff to collect in the planter area and infiltrate into the ground. Appropriate landscape material must be selected and overflow outlets allow excess water to drain into the city sewer.



Tree Pit Guards

Low, sturdy fence-like structures protect trees and surrounding plants from damage, soil compaction, and pets.



Inground Planter Under Construction

A 5x15-foot tree planter sits below a suspended pavement system that will support sidewalk paving once construction is complete. (Photo location: Denver, CO)



Inground Planter with Paving Installed

In this image, the pervious paving has been installed above the pavement suspension system. The usable sidewalk area has increased significantly.

3.6 STREET TREE PLAN

Throughout the Plan area, street trees enhance the streetscapes. They provide highly visible green in the public realm, typically separating the sidewalk from parking and drive lanes. In summer, trees provide shade, reduce the heat island effect, and aid in storm water mitigation through interception.

Generally, the street trees are selected for several features including higher canopies to provide visibility at the street level, ornamental or seasonal aesthetic value, or shade and density.

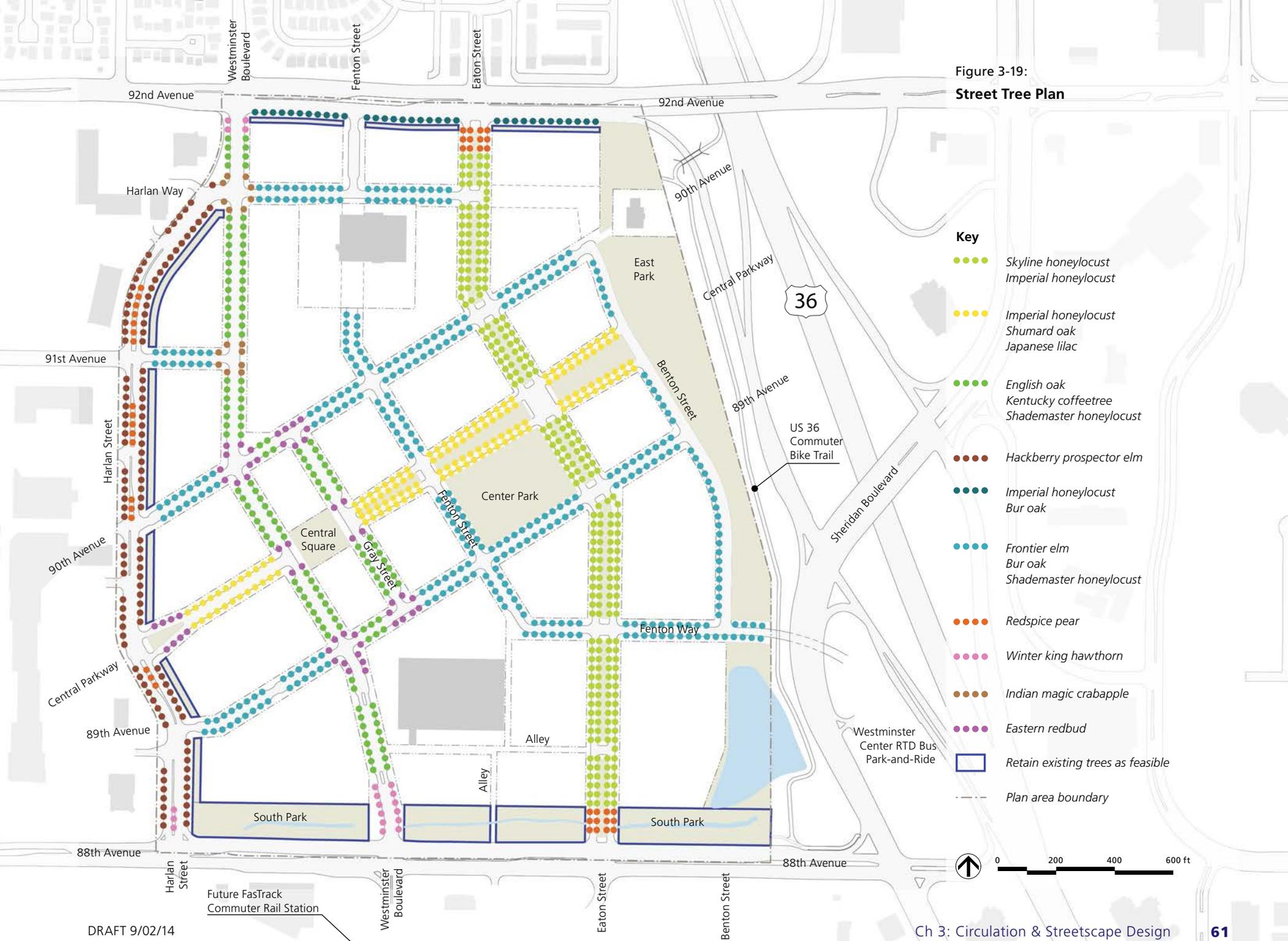
Along the major streets of the downtown, Westminster Boulevard, Gray Street, Eaton Street, and Central Parkway, special tree species underline the streets' significance within the hierarchy of the street network. Furthermore, flowering accent trees are located at street intersections and other important locations. Accent trees are located in landscape planters situated in curb extensions at street intersections. Here, curb extensions provide additional space that can help buffer and protect the smaller accent trees from passing vehicular traffic.

On Eaton Street and Central Parkway, honey locust trees line the green medians and sidewalks. The honey locust's dappled foliage allows sunlight to filter through the canopy allowing plants on the ground plane to flourish. The option of planting different species of honey locust on Eaton Street and Central Parkway should be evaluated.

3.6.1 Street Tree Plan

Within the Plan area, street trees shall conform to Figure 3-19: Street Tree Plan.

Figure 3-19:
Street Tree Plan



DRAFT 9/02/14

Future FasTrack
Commuter Rail Station

3.6.2 Street Tree Palette

Street trees within the Plan areas shall conform to tree selections defined in this palette.



Westminster Boulevard and Gray Street Tree

English Oak



Eaton Street and Central Parkway Tree Image 1

Honey locust



Eaton Street and Central Parkway Tree Image 2

Honey locust



Local Street Tree

Bur Oak



Alternate Local Street Tree

Kentucky Coffeetree



Harlan Street Tree

Red Oak



Accent Tree

Eastern Redbud



Alternate Accent Tree

Flowering Pear



Central Square and Station Plaza Tree

Linden

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3.7 SPECIAL EVENT AREAS AND ROUTES

Special event locations and potential street closures are outlined in Figure 3-20.

Central Square

The Central Square is located at the heart of the downtown. It is ideally positioned to host a variety of events that may include regular farmers markets, fairs, or special seasonal events. For events with space requirements that may exceed the dimensions of the square or anticipate very high attendance, Gray Street, which is immediately adjacent to the Central Square, can be closed. Coordination of hardscape materials between the Central Square, Gray Street, and the Central Parkway median a block east could further unite and enlarge the usable space for larger events.

Eaton Street Median

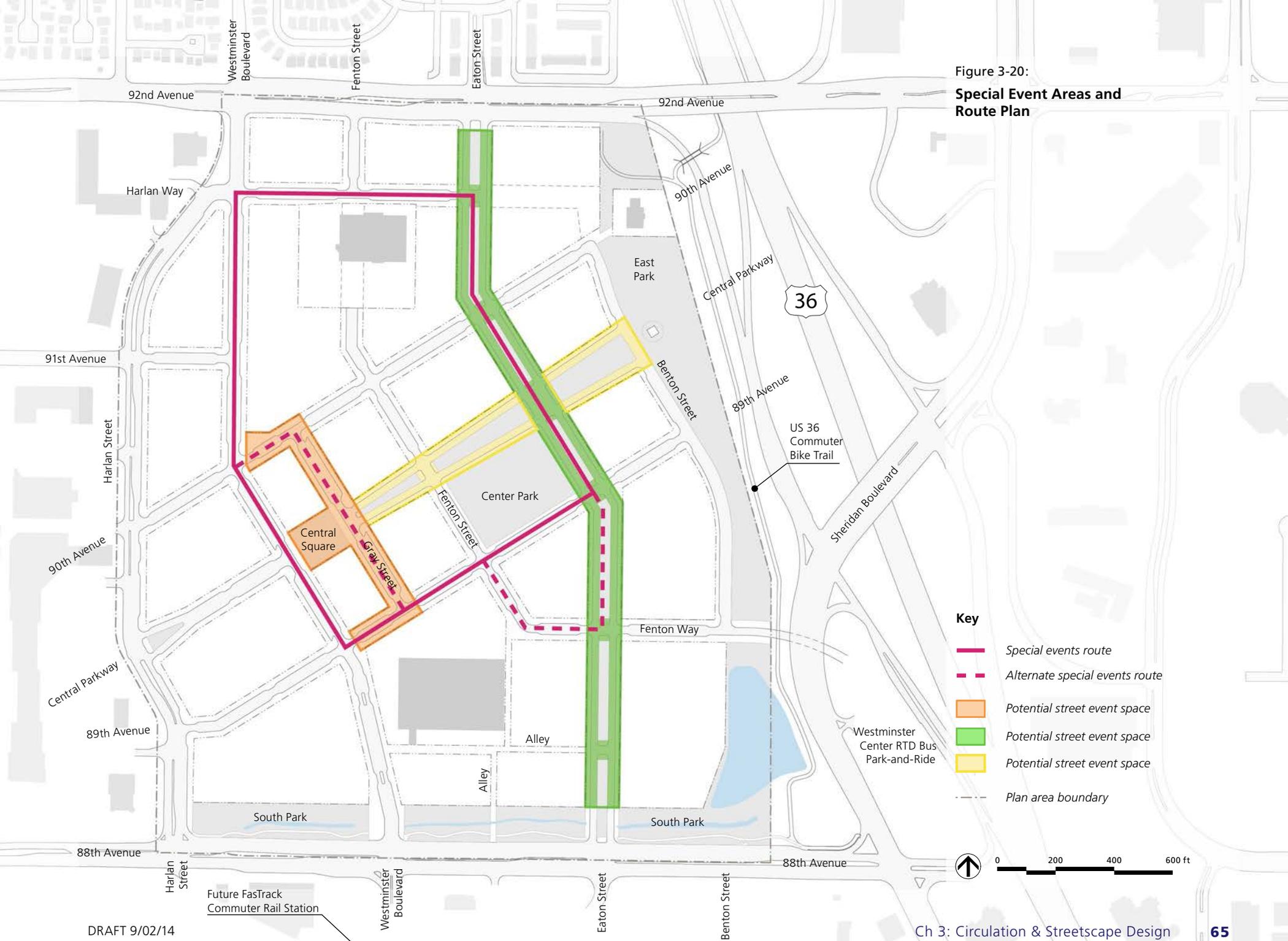
Eaton Street's green median is designed as a linear green space spanning the length of the site. Together with its 24-foot wide roadways on either side, Eaton Street lends itself to a temporary street fair. Numerous intersections to local and arterial streets provide convenient access from within the new downtown and from the city as a whole.

For special events, either the whole length of Eaton Street or shorter segments could be temporarily closed. Eaton Street's configuration also allows just one side of the street to be closed providing continued access on the other.

Parade Route

In the future, Westminster may have parade celebrations that would require a designated parade route. The parade could be routed wholly within the interior of the site so as not to impede traffic on 88th Avenue or 92nd Avenue. This route would follow Westminster Boulevard south to 89th Avenue, 89th Avenue east to Eaton Street, Eaton Street north to Harlan Street, and return west to Westminster Boulevard. This route is outlined in Figure 3-20.

Figure 3-20:
Special Event Areas and
Route Plan



- Key**
- Special events route
 - - - Alternate special events route
 - Potential street event space
 - Potential street event space
 - Potential street event space
 - Plan area boundary



Future FasTrack
Commuter Rail Station

3.8 WAYFINDING AND IDENTITY

The intent of a new wayfinding and environmental graphics system is to create a sense of place for the new downtown. It will provide a distinct identity and make it easy to navigate the Plan area. Beginning with the arrival in downtown, wayfinding signs will direct those coming by car to parking garages that are part of a park-once concept. These garages are primary transition points from the automobile to pedestrian movement. Similarly, arrivals from public transit or bike will be directed to destinations within the new downtown. In particular, wayfinding signs will focus on the new retail and activity centers around Westminster Boulevard and Gray Street.

The wayfinding concept could also direct to other destinations such as office and business locations, residential neighborhoods, and park, recreation and other amenity areas. Additionally, the wayfinding design and scheme for the downtown should incorporate technology with the use of phone applications, social media and the like.

This Plan provides conceptual cornerstones that should be developed into a full wayfinding and identity program in a future planning phase.

Relationship to Other Plan Components

The wayfinding concept should build upon the streetscape standards in Section 3.4. Use of similar colors, materials, or design aesthetic between furnishings and wayfinding elements would provide a cohesive identity along major downtown corridors.

RTD Coordination

The wayfinding concept should be coordinated with RTD's existing and future transit facilities to ensure compatibility between the two programs.

Downtown Gateways

The intersections at 88th Avenue and Westminster Boulevard and Eaton Street and 92nd Avenue and Westminster Boulevard and Eaton Street are the most visible and therefore the Primary Gateways to downtown. These locations provide opportunities to shape the identity of the downtown and will set the tone for the overall experience.

While signage, plantings, paving, and other similar features will help shape the gateway experience, the building framing these entry points will make the most significant statement regarding the character of the downtown. Therefore, buildings framing the Primary Gateway locations should exemplify the urban, mixed-use, and space-framing characteristics identified in the Plan goals. The architecture at these entry points should reflect the ambitions of the downtown in their design language, scale, massing, and articulation.

Secondary Gateways to downtown are called out in Figure 3-24: Conceptual Wayfinding and Identity Plan. Similar to Primary Gateways, these secondary entries also have the ability to shape the downtown identity, but will do so to a lesser extent.

Identity Corridors

Westminster Boulevard, Eaton Street, and Fenton Street/Way, from the Park-and-Ride

to Central Parkway, are downtown's primary identity corridors. Like the gateways, these streets shape downtown's identity as an integral part of the urban experience. Beginning at the gateways, street and accent trees, landscaping, lighting, pedestrian and bike amenity areas, and the intricate design for an active street realm create a rich street experience.

Parking District Navigation

For the downtown's park-once parking district concept to be successful, finding parking should be effortless. A parking district "smart" navigation system should direct visitors to parking structures with vacant stalls. Signage and wayfinding elements should clearly identify in a memorable way the different parking structures within the district.

Once drivers and passengers have become pedestrians, wayfinding should navigate to various downtown destinations and back to the parking structures.



Directional Signage

Directional signage mounted to a light pole.



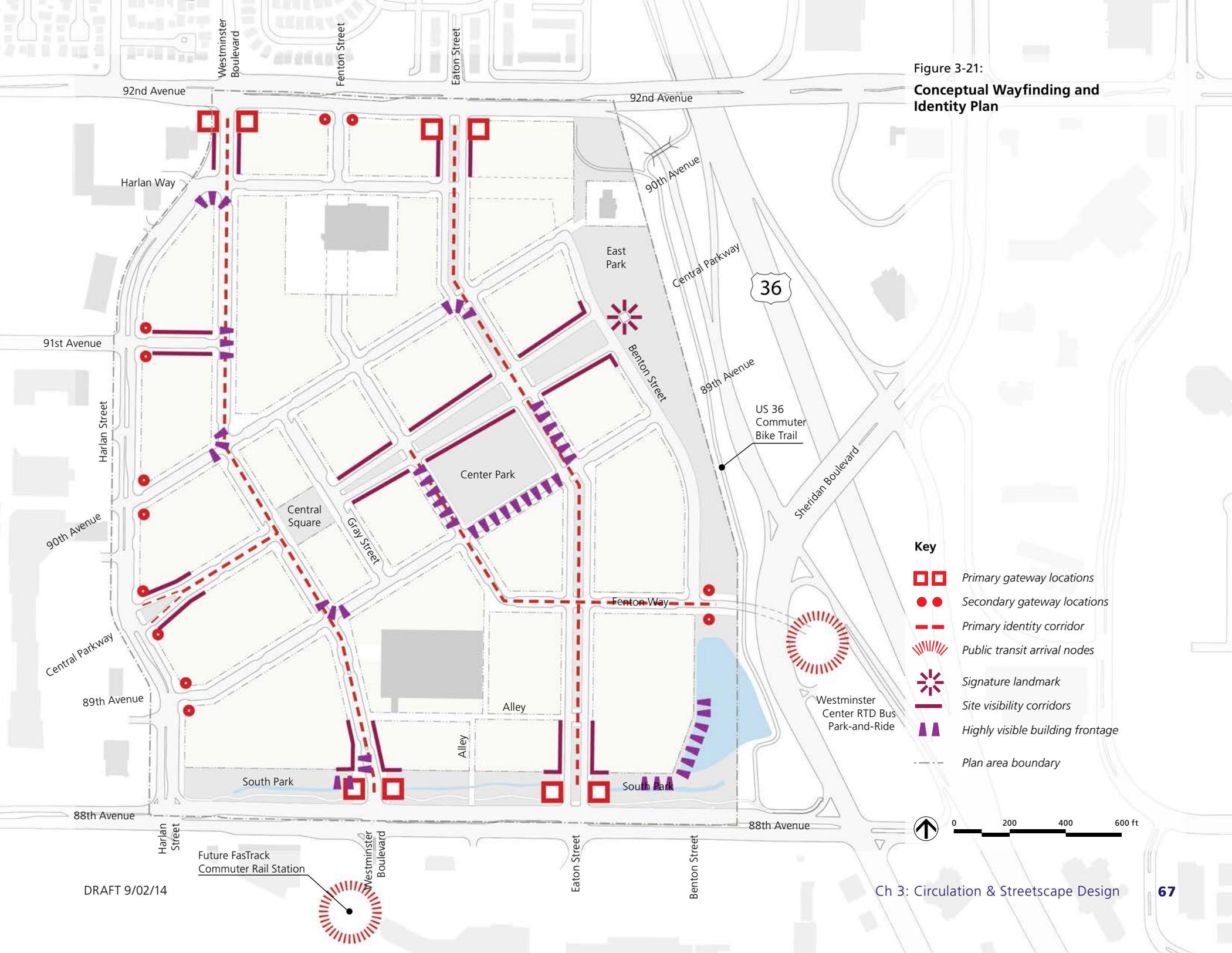
Banner Signage

Banner signs attached to a special pole.



Monument Sign

Figure 3-21:
Conceptual Wayfinding and Identity Plan



- Key**
- Primary gateway locations
 - Secondary gateway locations
 - Primary identity corridor
 - Public transit arrival nodes
 - Signature landmark
 - Site visibility corridors
 - Highly visible building frontage
 - Plan area boundary

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4

BUILT FORM



4.1 OVERALL BUILT FORM DESIGN INTENT

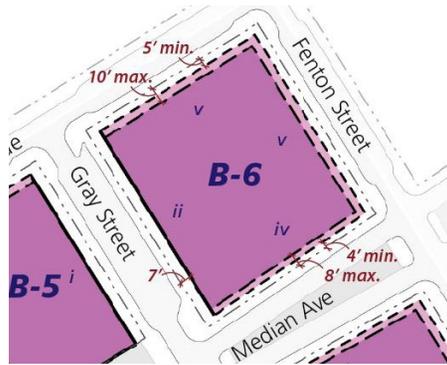
The Plan's development standards follow a fundamentally urban approach. The development regulations of this chapter guide the design of buildings that will line streets, overlook green spaces, and create a ground-floor environment that is decidedly human-scaled and pedestrian-oriented.

To achieve this goal, this chapter provides standards on the level of the individual city block, the building, and the ground-floor frontages. The block development standards are location-specific and address each individual development block in the Plan area. The building type standards define a menu of building types and standards that are specific to each type. The frontage type standards provide standards for six prototypical pedestrian-oriented ground-floor building frontage type designs.

The additional building standards and guidelines, parking and loading design standards and guidelines, and sign regulations towards the end of this Chapter are common to all areas of the Plan.

Policy Objectives

1. Ensure building placement and frontage along the street reflects an urban downtown character.
2. Maintain a consistent street frontage or "street wall" throughout the downtown area.
3. Utilize building architecture to announce gateways, key intersections and public spaces.
4. Create architectural variation along a



Block Standards

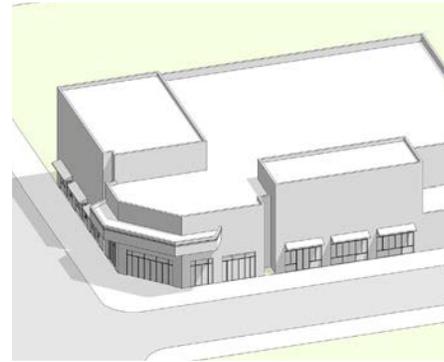
Block standards provide building placement standards, alley and block access point locations, and allowed building and frontage types.

block face through diversity of massing, articulation and architectural detailing.

5. Create a built environment that emphasizes pedestrian scale and variety by activating ground floor frontages, using ample fenestration, awnings and frequent building entries.
6. Ensure that streets and spaces with high volumes of pedestrian traffic are comfortable, protected from the sun, and visually and physically engaging at the ground level.
7. Design parking structures so they do not dominate the built environment.
8. Encourage a variety of building and development types throughout the site.

Design Review Process and Variations from Standards

Chapter 6: Implementation describes the City design review process as well as procedures for variations from the standards of this Chapter.



Building Type Standards

Building type standards include facade, massing, and green space requirements as well as type-specific frontage and height standards.



Frontage Standards

Frontages are the interface between new downtown's public space network and private development.

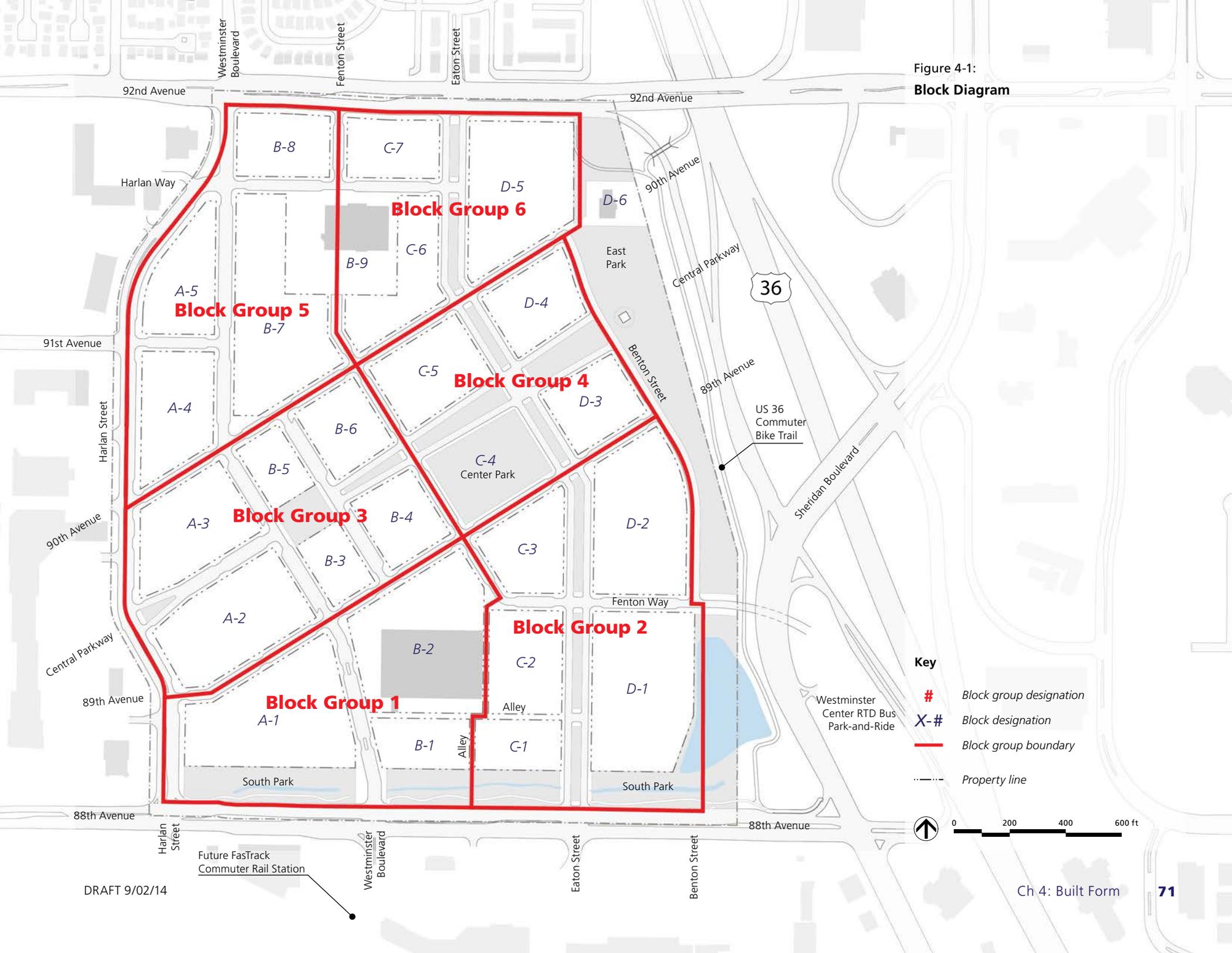
4.2 BLOCK DEVELOPMENT STANDARDS

The block development standards regulate development within the Plan area. In order to respond to a number of unique conditions throughout downtown, standards for each development block and every blockfront are provided.

The Master Plan area is subdivided into 24 development blocks in six geographic groups, as shown in Figure 4-1.

The following pages depict the applicable development standards for each block. All new development must adhere to the standards presented on these pages. Standards for public green space blocks are covered in Chapter 5: Green Space.

Figure 4-1:
Block Diagram



Key

- # Block group designation
- X-# Block designation
- Block group boundary
- Property line



4.2.1 Explanation of Standards

The block development standards cover the following:

A. Block Intent Statement

This statement describes the development intent for the respective block group and points out specific design opportunities.

B. Building Placement and Frontage Standards

Building placement standards describe where on the property buildings shall be located and include build-to lines, setbacks, minimum frontage occupancy, and service and access points.

Build-to and setback lines are measured from the property line at street frontages. Setbacks may include minimum setbacks and maximum setbacks from the property line. Building fronts may be placed at the minimum setback, the maximum setback, or anywhere in between. For additional clarity, build-to and setback line requirements are presented in the block diagram and in the block frontage standards table.

Where a build-to line is specified, the building front may be placed at or within a line located ten inches behind the build-to line.

Minimum frontage occupancy is the minimum percentage of a blockfront at which a building frontage is set either at or within ten inches of the build-to line or within the minimum and maximum setback lines, as required by the block development standards. As shown in Figure 4-2, the minimum frontage occupancy shall be measured as a

linear distance parallel to the property line. The remaining frontage length may be set behind the build-to or setback lines or may be left unoccupied.

Service and access point standards regulate curb cut locations for each blockfront.

C. Maximum Building Height Standards

Height standards regulate the maximum building height. Building height shall be defined pursuant to the W.M.C.

D. Street & Alley Connections

Block development standards may encourage or require streets or alleys in designated locations. Locations are indicated in the individual block development diagrams. It is anticipated that redevelopment of existing uses in block groups 1, 2, 5, and 6 will result in a reconsideration of the street and alley network to create finer grain blocks in those locations. Final alignments shall be approved through the development review process. Where possible, entrances to alleys should line up across streets.

E. Permitted Building Types

This standard provides a table of permitted building types for each development block. Furthermore, certain blocks require development to utilize two or more different building types.

F. Permitted Frontage Types

The permitted frontage types table outlines which frontage types are permitted at each blockfront. Developments must also comply with the permitted frontage types of the selected building type.

Figure 4-3 explains the elements of the Block Development Standards provided for each block group.

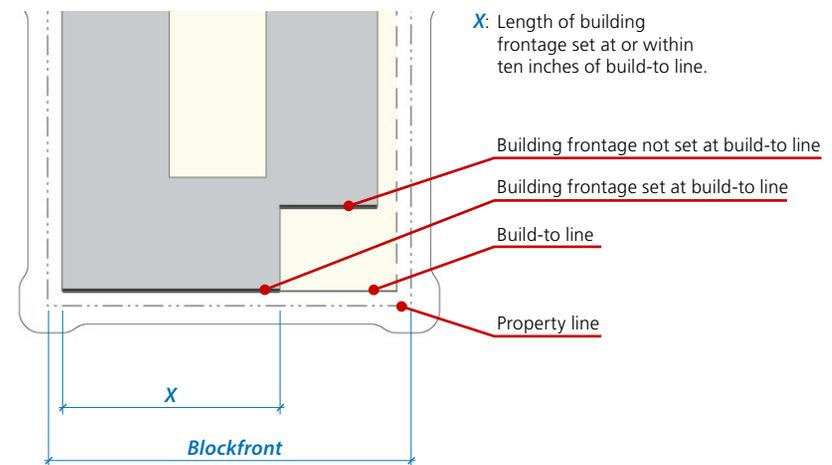


Figure 4-2: Minimum Building Frontage Occupancy

This diagram illustrates the relationship between the building frontage and the build-to line. The blockfront standards require a minimum length of the building frontage to be set at or within ten inches of the build-to line (X). The remainder of the building frontage may be set any distance behind the build-to line.

Similarly, at blockfronts with maximum and minimum setbacks, a minimum percentage of the building frontage shall be set between the maximum and minimum setback lines (X). The remainder of the building frontage may be set any distance behind the minimum setback line.

The minimum building frontage occupancy varies by blockfront and is regulated by the block standards.

**Figure 4-3:
Typical Block Development Standards
Diagram & Table**

The block development standards are represented graphically and in tables. Information such as setbacks and build-to lines can be found in both the plan graphic and the table. Other standards, such as frontage occupancy requirements, are only presented in tabular form.

Block designations (alphabetical letter and number) and frontage designations (lower case Roman numerals) link the plan elements to the tables.



Block Designation:
These designations identify the individual downtown blocks and are numbered A-1 through D-6.

Property Line:
The property line is shown in relationship to the setback or build-to lines.

Blockfront Designation:
These numbers identify the different blockfront types within a group of blocks. The standards for each blockfront designation are consistent within one block group but may be different in another block group.

- Key**
- Developable area
 - Developable area between minimum and maximum setback
 - X-#** Block designation
 - ii* Blockfront designation
 - X'** Distance in feet
 - Property line
 - Build-to line
 - Minimum setback line
 - Maximum setback line
 - Alley, suggested location

Table 4.2.1: Block Frontage Standards	Blockfront							
	i	ii	iii	iv	v	vi	vii	viii
Build-To Line (from R.O.W.)	7'	7'	N/A	N/A	N/A	N/A	25'	N/A
Min. Setback	N/A	N/A	5'	4'	5'	5'	N/A	5'
Max. Setback	N/A	N/A	10'	8'	10'	10'	N/A	10'
Min. Frontage Occupancy	90%	90%	75%	75%	60%	60%	75%	90%
Service & Access Points	NP	NP	P-1	NP	P-1	P-2	P-1	NP

Table key: X – permitted; N/A – not applicable; NP – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

4.2.2 Block Group 1

A. Block Intent Statement

This block group at the southwest of the site frames both sides of Westminster Boulevard, the primary north-south axis of the downtown. The blocks are characterized by a mix of uses with active ground-floor uses along Westminster Boulevard and 89th Avenue frontages.

An existing department store building is located on block B-2. New retail uses should line the existing building along the Westminster Boulevard and 89th Avenue frontages.

The southern edges of blocks A-1 and B-1 front South Park that runs along 88th Avenue. Ground-floor frontages along the park shall incorporate active uses such as restaurants (see Section 2.3 B.) or active frontage types, such as *urban frontages* or *stoops* for homes, office or retail uses.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table).

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Alleys are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F. Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.2.1: Block Frontage Standards	Blockfront				
	i	ii	iii	iv	v
Build-To Line (from R.O.W.)	7'	N/A	N/A	N/A	25'
Min. Setback	N/A	0'	5'	5'	N/A
Max. Setback	N/A	18'	10'	10'	N/A
Min. Frontage Occupancy	90%(1)	75%	75%(1)	60%	75%
Service & Access Points	NP	NP	P-1	P-2	NP

Table 4.2.2.2: Permitted Frontage Types	Blockfront				
	i	ii	iii	iv	v
Storefront	X	X	X	X	X
Storefront Cafe	X	X	X	X	X
Urban Frontage	X	X	X	X	X
Forecourt			X	X	
Dooryard					X
Stoop		X		X	X

Table 4.2.2.3: Permitted Building Types	Block		
	A-1	B-1	B-2
Row House	X	X	
Flex/Loft	X		
Courtyard	X		X
Urban Block	X	X	X
Liner with Garage	X	X	X
Exposed Garage	X (2)		
Podium High-Rise	X		
Urban Anchor	X		X
Urban Supermarket	X		X
Min. # of Types	2	1	2

(1) Where not encumbered by access requirements to existing buildings on Block B-2.

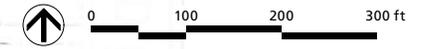
(2) May only be exposed on block front iv and then only above the ground floor.

Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

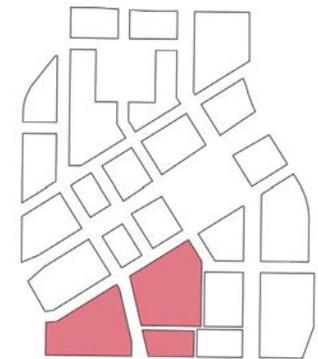
Figure 4-4:
Block Group 1 Development Diagram



- Key**
- Developable area
 - Developable area between minimum and maximum setback
 - X-#** Block designation
 - ii* Blockfront designation
 - X'** Distance in feet
 - Property line
 - Build-to line
 - Minimum setback line
 - Maximum setback line
 - Alley, suggested location



Key Plan



4.2.3 Block Group 2

A. Block Intent Statement

Blocks front both sides of Eaton Street, a green boulevard with a wide median for recreational activities. Blocks are characterized by a mix of uses. Block D-1 is highly visible from the 88th Avenue and Sheridan Boulevard. Development here has the opportunity for a gateway statement.

Blocks C-1 and D-1 front South Park that runs along 88th Avenue. Ground-floor fronts along the park should incorporate active uses such as restaurants or active frontage types. An existing stormwater retention pond is relocated adjacent to Block D-1. Outdoor activity areas and water features that activate the pond as an outdoor amenity are encouraged.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table).

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Street or alley connections are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F. Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.3.1: Block Frontage Standards	Blockfront						
	i	ii	iii	iv	v	vi	vii
Build-To Line (from R.O.W.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Min. Setback	4'	4'	0'	5'	5'	10'	5'
Max. Setback	8'	8'	18'	10'	10'	N/A	10'
Min. Frontage Occupancy	90%	90%	75%	60%	75%	60%	75%
Service & Access Points	P-1	NP	NP	P-1	P-2	NP	P-1

Table 4.2.3.2: Permitted Frontage Types	Blockfront						
	i	ii	iii	iv	v	vi	vii
Storefront	X	X	X	X	X	X	X
Storefront Cafe	X	X	X	X		X	X
Urban Frontage	X	X	X	X	X	X	X
Forecourt				X	X		
Dooryard				X	X	X	
Stoop	X	X	X	X	X	X	X

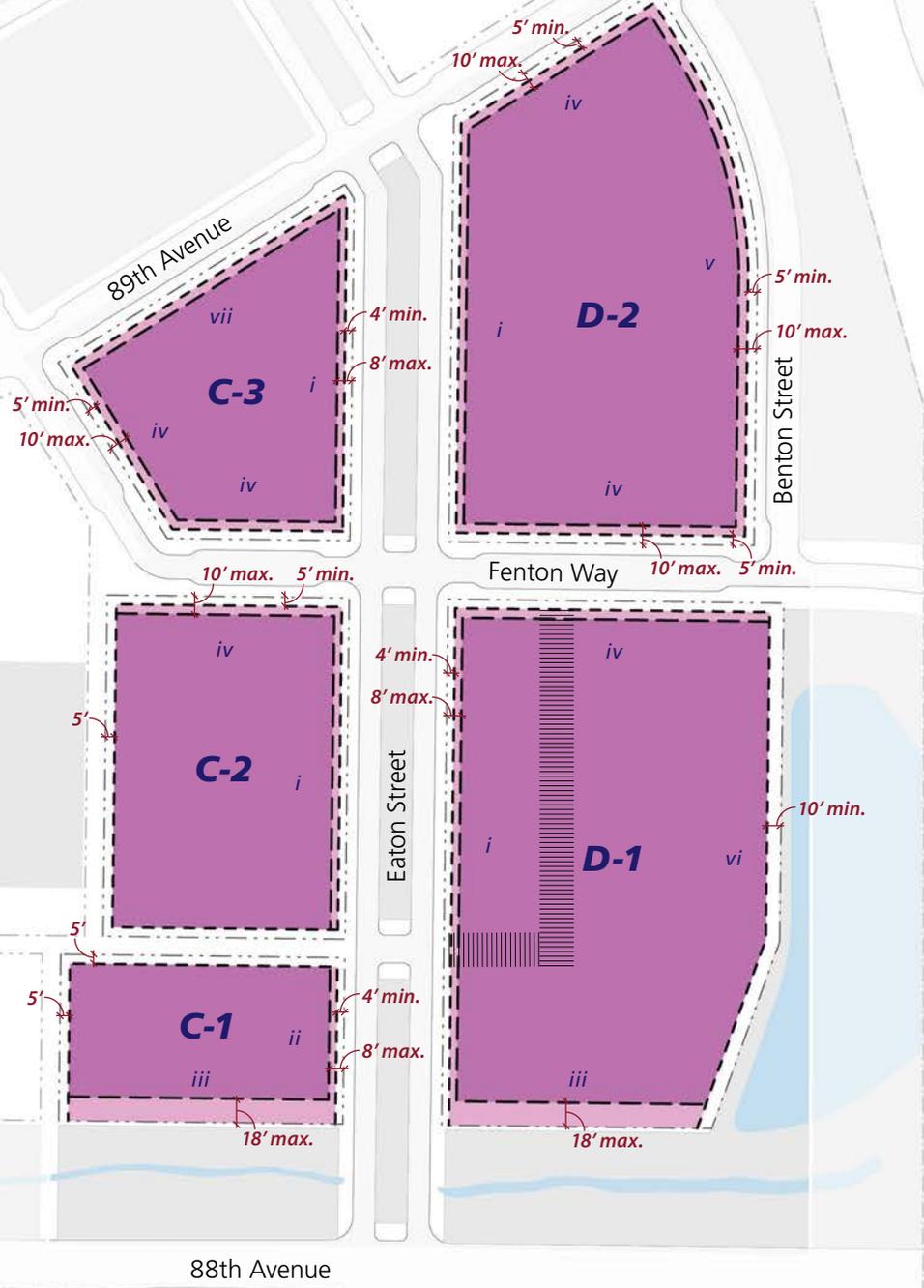
Table 4.2.3.3: Permitted Building Types	Block				
	C-1	C-2	C-3	D-1	D-2
Row House	X	X		X	X
Flex/Loft	X	X		X	X
Courtyard	X	X	X	X	X
Urban Block	X	X	X	X	X
Liner with Garage	X	X		X	X
Exposed Garage		X (1)		X (2)	X
Podium High-Rise		X		X	X
Urban Anchor				X	X
Urban Supermarket		X	X	X	X
Min. # of Types	1	1	1	3	2

(1) May only be exposed on block front iv and then only above the ground floor.

(2) May only be exposed on block fronts iv and vi. On block front iv they may be exposed only above the ground floor.

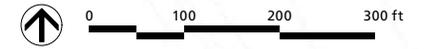
Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

Figure 4-5:
Block Group 2 Development Diagram

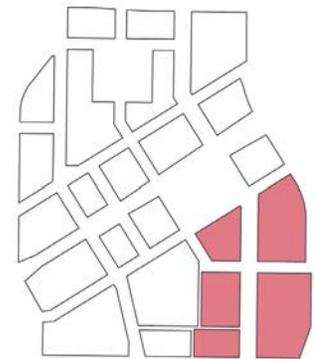


Key

- Developable area
- Developable area between minimum and maximum setback
- X-#** Block designation
- ii* Blockfront designation
- X'** Distance in feet
- Property line
- Build-to line
- Minimum setback line
- Maximum setback line
- Alley, suggested location



Key Plan



4.2.4 Block Group 3

A. Block Intent Statement

This block group is the active core of the Plan area and straddles Westminster Boulevard. The blocks can accommodate a mix of different uses while ground-floor retail lines Westminster Boulevard and Gray Street. The Central Square, the new downtown's central public space, sits between blocks B-3 and B-5. Buildings on this block house ground-floor retail that activates and frames this urban square. Likewise, development leading to the Center Park along Central Parkway and fronting the park will provide an active frontage and uses.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table).

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Street or alley connections are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F. Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.4.1: Block Frontage Standards	Blockfront							
	i	ii	iii	iv	v	vi	vii	viii
Build-To Line (from R.O.W.)	7'	0'	N/A	N/A	N/A	N/A	25'	N/A
Min. Setback	N/A	N/A	5'	4'	5'	5'	N/A	5'
Max. Setback	N/A	N/A	10'	8'	10'	10'	N/A	10'
Min. Frontage Occupancy	90%	90%	75%	75%	60%	60%	75%	90%
Service & Access Points	NP	NP	P-1	NP	P-1	P-2	P-1	NP

Table 4.2.4.2: Permitted Frontage Types	Blockfront							
	i	ii	iii	iv	v	vi	vii	viii
Storefront	X	X	X	X	X	X	X	X
Storefront Cafe	X	X	X	X	X	X	X	X
Urban Frontage				X	X	X	X	X
Forecourt				X	X	X	X	
Dooryard				X	X	X	X	
Stoop				X	X	X	X	X

Table 4.2.4.3: Permitted Building Types	Block					
	A-2	A-3	B-3	B-4	B-5	B-6
Row House	X	X		X		X
Flex/Loft	X	X		X		X
Courtyard	X	X		X		X
Urban Block	X	X	X	X	X	X
Liner with Garage	X	X				X
Exposed Garage	X (1)	X (1)		X (1)		X (1)
Podium High-Rise	X	X	X	X (2)	X	X
Urban Anchor	X	X				
Urban Supermarket	X	X		X		X
Min. # of Types	3	2	1	1	1	1

(1) May only be exposed on block fronts v and vi and then only above the ground floor.

(2) Permitted with City approval and requires shadow study to minimize shading of Center Park.

Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

Figure 4-6:
Block Group 3 Development Diagram



4.2.5 Block Group 4

A. Block Intent Statement

These four blocks are grouped around the intersection of Eaton Street and Central Parkway. Buildings on these blocks will overlook two prominent attractive green spaces in the street medians and the Center Park green space. Building facades lining the green spaces play an important part in spatially defining these public spaces.

Blocks D-3 and D-4 front Benton Street and form the eastern edge of downtown along East Park. Development on these blocks can take advantage of the visibility from US 36.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table).

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Streets or alleys are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F. Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.5.1: Block Frontage Standards	Blockfront			
	i	ii	iii	iv
Build-To Line (from R.O.W.)	N/A	N/A	N/A	N/A
Min. Setback	4'	4'	5'	5'
Max. Setback	8'	8'	10'	10'
Min. Frontage Occupancy	90%	75%	60%	60%
Service & Access Points	NP	P-1	NP	P-1

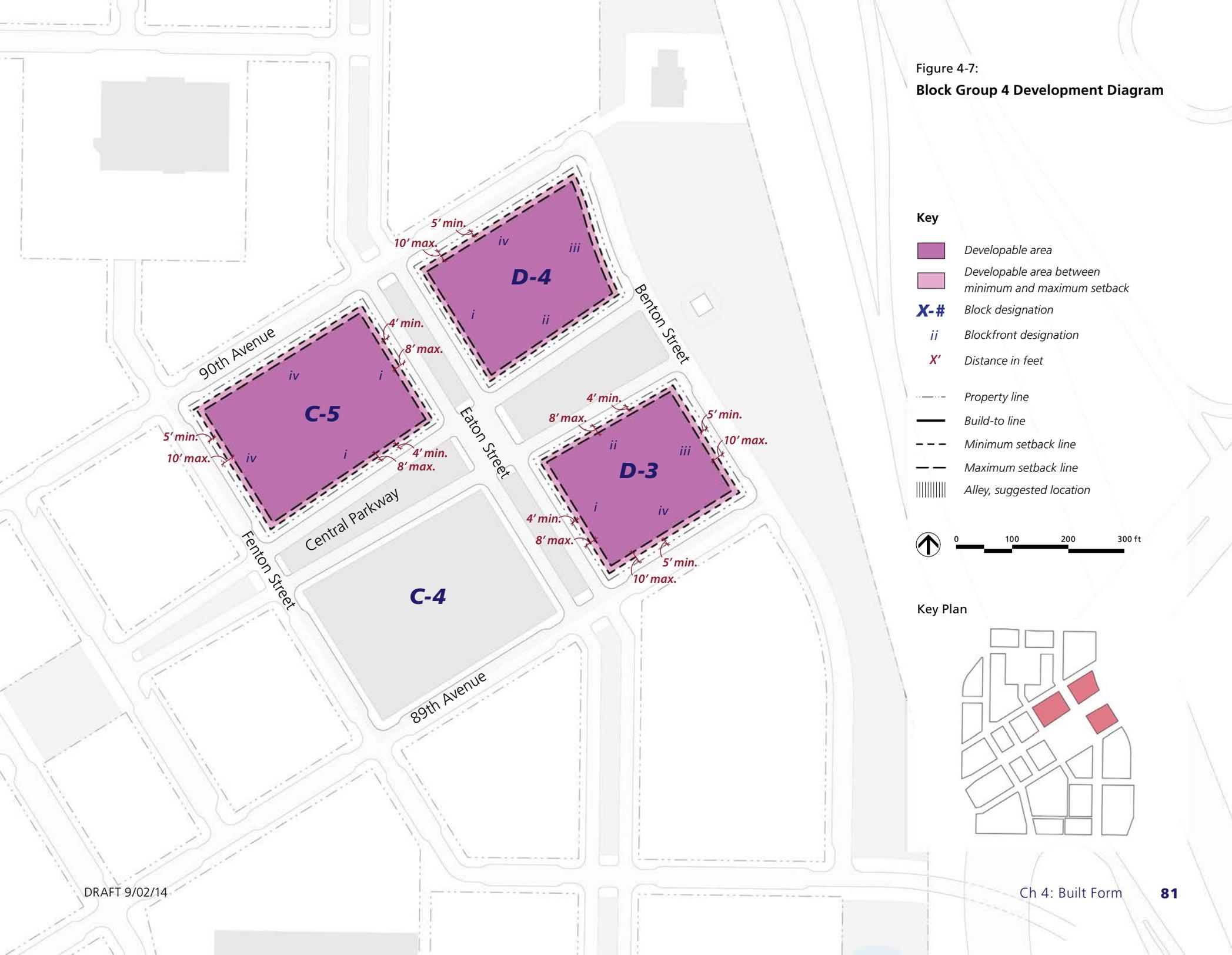
Table 4.2.5.2: Permitted Frontage Types	Blockfront			
	i	ii	iii	iv
Storefront	X	X	X	X
Storefront Cafe	X	X		X
Urban Frontage	X	X	X	X
Forecourt			X	X
Dooryard			X	X
Stoop	X	X	X	X

Table 4.2.5.3: Permitted Building Types	Block		
	C-5	D-3	D-4
Row House	X	X	X
Flex/Loft	X	X	X
Courtyard	X	X	X
Urban Block	X	X	X
Liner with Garage	X	X	X
Exposed Garage	X (1)	X (1)	X (1)
Podium High-Rise	X		
Urban Anchor			
Urban Supermarket			
Min. # of Types	2	1	1

(1) May only be exposed on block fronts iii and iv and then only above the ground floor.

Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

Figure 4-7:
Block Group 4 Development Diagram

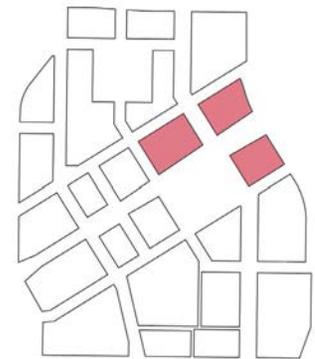


Key

- Developable area
- Developable area between minimum and maximum setback
- X-#** Block designation
- ii* Blockfront designation
- X'** Distance in feet
- Property line
- Build-to line
- Minimum setback line
- Maximum setback line
- Alley, suggested location



Key Plan



4.2.6 Block Group 5

A. Block Intent Statement

These development blocks straddle the northern portion of Westminster Boulevard. The blocks can accommodate a variety of uses that could include multi-family mixed-use buildings or campus office types.

Blocks A-4 and B-7 are the northern edge of the retail core. Given their size and location, they are well suited for an urban retail anchor building. Block B-8 occupies a prominent location at the intersection of Westminster Boulevard and 92nd Avenue. Development on this site will have a significant impact on the identity of the downtown and the location is well suited for mixed-use buildings that form the city's fabric.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table) and shall be located to maximize preservation of existing trees on blocks A-4 and A-5.

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Streets or alleys are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.6.1: Block Frontage Standards	Blockfront					
	i	ii	iii	iv	v	vi
Build-To Line (from R.O.W.)	7'	7'	7'	25'	15'	N/A
Min. Setback	N/A	N/A	N/A	N/A	N/A	5'
Max. Setback	N/A	N/A	N/A	N/A	N/A	10'
Min. Frontage Occupancy	90%	80%	80%	75%	75%	60%
Service & Access Points	NP	P-1	P-1	P-1	NP	P-1

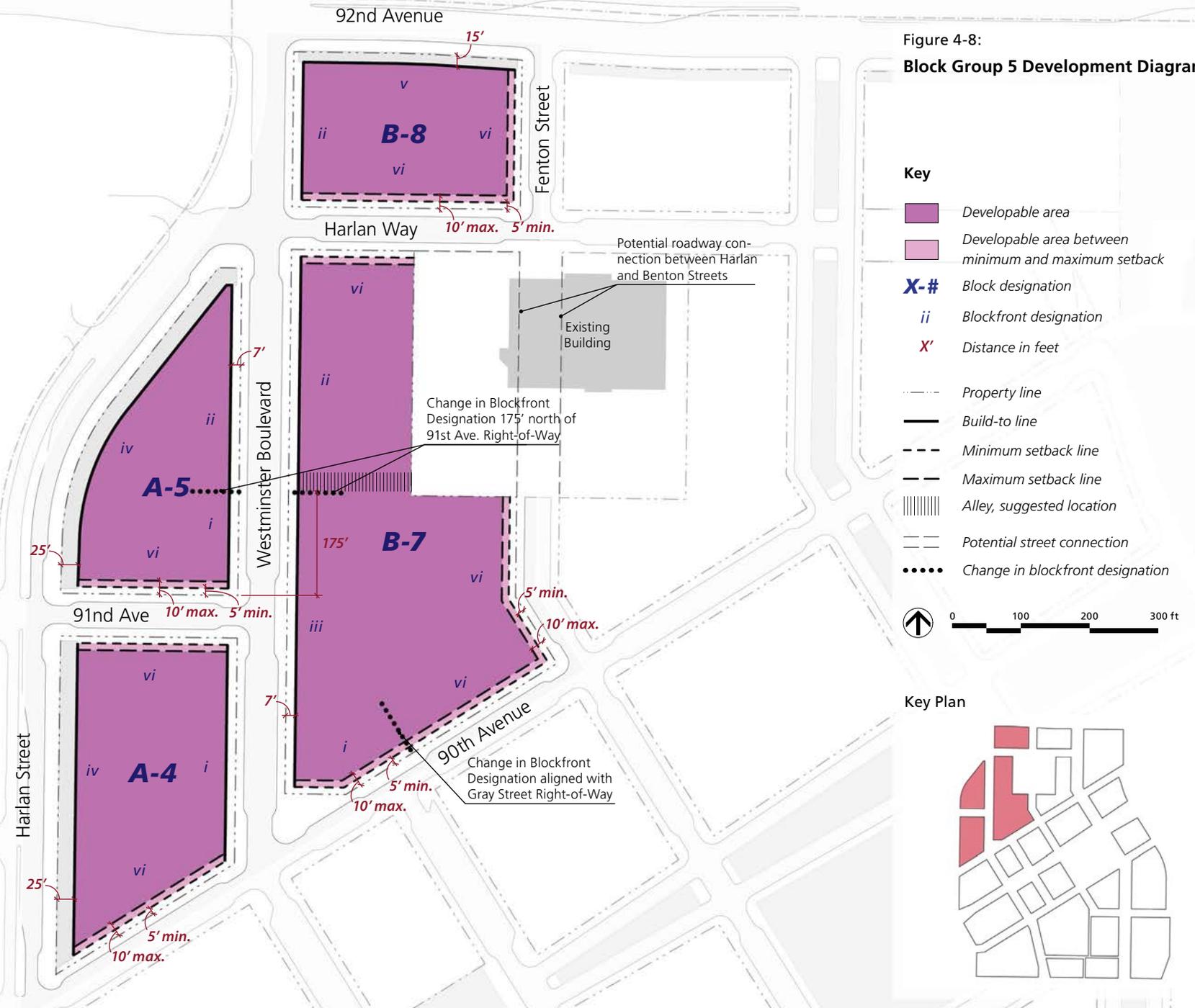
Table 4.2.6.2: Permitted Frontage Types	Blockfront					
	i	ii	iii	iv	v	vi
Storefront	X	X	X	X	X	X
Storefront Cafe	X	X	X	X	X	X
Urban Frontage	X	X	X	X	X	X
Forecourt				X	X	X
Dooryard				X	X	X
Stoop		X		X	X	X

Table 4.2.6.3: Permitted Building Types	Block			
	A-4	A-5	B-7	B-8
Row House	X	X	X	X
Flex/Loft	X	X	X	X
Courtyard	X	X	X	X
Urban Block	X	X	X	X
Liner with Garage	X	X	X	X
Exposed Garage		X (1)	X (1)	X (1)
Podium High-Rise	X	X	X	
Urban Anchor	X	X	X	
Urban Supermarket	X	X	X	X
Min. # of Types	2	1	2	1

(1) May only be exposed on block front vi and then only above the ground floor.

Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

Figure 4-8:
Block Group 5 Development Diagram



4.2.7 Block Group 6

A. Block Intent Statement

These three development blocks are located at the northeastern corner of the new downtown. Blocks C-7 and D-5 prominently overlook 92nd Avenue, with block D-5 also overlooking East Park with views down the US 36 corridor towards Denver's skyline. While buildings on these blocks are highly visible they must also contend with a decidedly automobile-oriented street environment and related noise.

An existing commercial parcel is located adjacent to block C-6. It houses the Brunswick bowling alley and associated parking. Street improvements bringing Fenton Street through the site will be implemented when it is redeveloped. Future development phases on the Brunswick parcel should anticipate filling in the remaining street fronts.

B. Building Placement & Frontages

Buildings shall be located in conformance with the build-to and setback lines depicted in the block development diagram. Buildings shall also conform to the block frontage standards (see block frontage standards table).

C. Maximum Building Height

Buildings shall conform to the height limits of the building type standards (see Section 4.3).

D. Street & Alley Connections

Developments may provide streets or alleys on each block. Streets or alleys are encouraged where indicated in the block development diagram. The City shall approve final locations.

E. Permitted Frontage Types

The frontage types listed in the frontage type table shall be permitted on each designated blockfront. See section 4.4 for frontage standards.

F. Permitted Building Types

Building types shall conform to the types listed in the permitted building types table. See Section 4.3 for building type standards.

Table 4.2.7.1: Block Frontage Standards	Blockfront				
	i	ii	iii	iv	v
Build-To Line (from R.O.W.)	N/A	N/A	15'	N/A	0
Min. Setback	4'	4'	N/A	5'	N/A
Max. Setback	8'	8'	N/A	10'	N/A
Min. Frontage Occupancy	90%	90%(1)	75%	60%	60%
Service & Access Points	NP	P-1	NP	P-1	NP

Table 4.2.7.2: Permitted Frontage Types	Blockfront				
	i	ii	iii	iv	v
Storefront	X	X	X	X	
Storefront Cafe	X	X		X	
Urban Frontage	X	X	X	X	X
Forecourt				X	
Dooryard			X	X	
Stoop	X	X	X	X	X

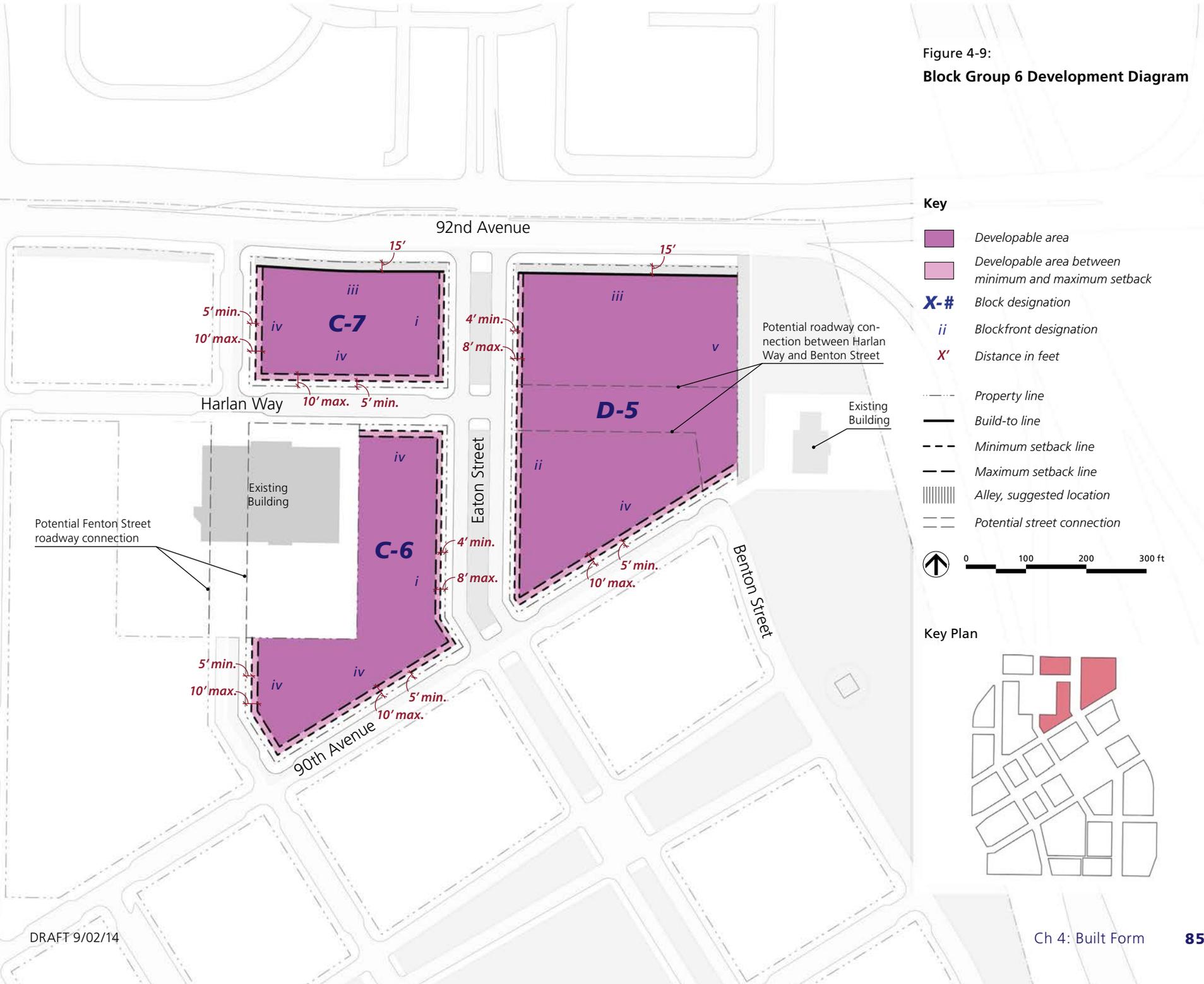
Table 4.2.7.3: Permitted Building Types	Block		
	C-6	C-7	D-5
Row House	X	X	X
Flex/Loft	X	X	X
Courtyard	X	X	X
Urban Block	X	X	X
Liner with Garage	X	X	X
Exposed Garage		X (2)	X (2)
Podium High-Rise			X
Urban Anchor			
Urban Supermarket		X	X
Min. # of Types	1	1	2

(1) Minimum frontage occupancy excludes length of frontage allocated for potential roadway connection.

(2) May only be exposed on block fronts iv and v. On block front v they may only be exposed above the ground floor.

Table key: X – permitted; N/A – not applicable; NP or “blank” – not permitted or none permitted; P-1 – permitted with a limit of one per blockfront; P-2 – permitted with a limit of two per blockfront.

Figure 4-9:
Block Group 6 Development Diagram



4.3 BUILDING TYPE STANDARDS AND GUIDELINES

In order to provide for a variety of household types and to create a varied and complex urban environment, this Plan provides for a diversity of building types, from row houses, flex/lofts, and courtyard buildings to urban block buildings, liner buildings with garages, and podium high-rises. The standards for each block mandate a minimum number of building types to be located on each block. Once a particular building type is selected, development must adhere to the type-specific standards and guidelines. These include maximum façade width, lot width, pedestrian access, parking, green space, landscape, frontage types, and building massing (see Figure 4-10).

All building types should be designed to encourage activation of the public realm and provide private green spaces, such as gardens, courtyards, and porches for residents.

The selected building types for each block will be chosen at the time of development of a particular block. The building types provided in this Plan define the standards and guidelines that are applicable to the development. While there is flexibility within the choice of building types for each block, only certain building types may be appropriate for a particular block given adjacent uses and other requirements. Each block's block development diagram specifies if there is such a limit (see Section 4.2).

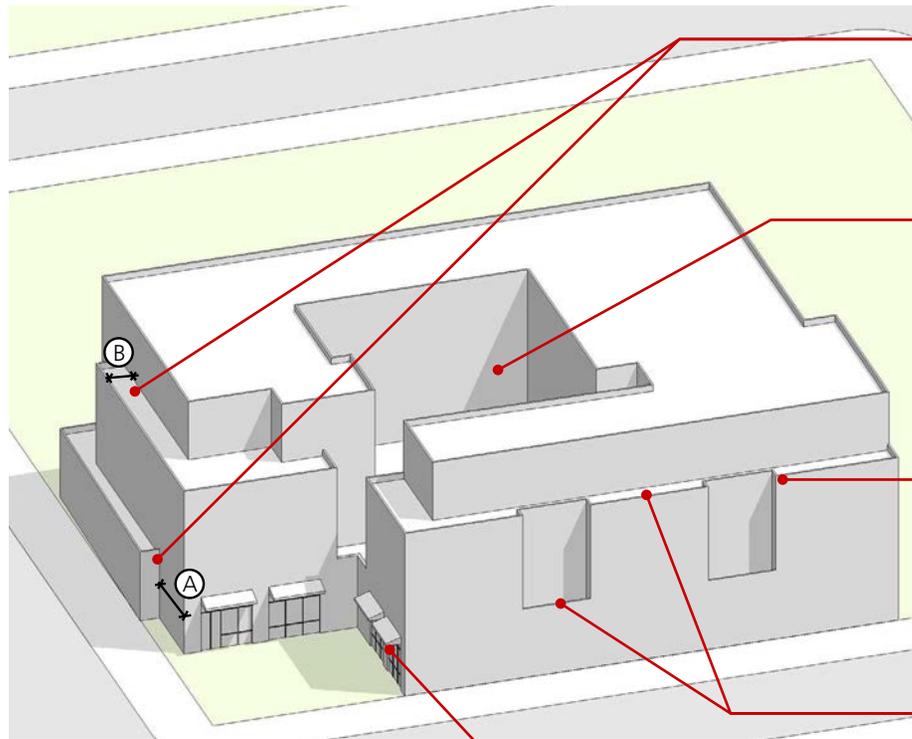


Figure 4-10: Key Building Type Elements

Note: See also definitions, Chapter 7

Plane Break:

The area of the building where the plane of the facade varies in depth, represents a plane break. *Plane breaks* can be horizontal (see (A) left) or vertical (see (B) left).

Green Space:

Each building type requires the lot area to be occupied by a certain percentage of green space area, which can be accommodated in a variety of ways, for instance through gardens, yards, patios, courtyards, etc. as described on each building type page.

Maximum Footprint per Story:

The floor area of upper stories should be less than the area of the building footprint at grade as indicated by the maximum allowed footprint per story charts on each building type page.

Maximum Upper Level Building Frontage Occupancy:

Certain building types have limitations on the percentage of the building front (as determined by the ground-floor plan) that can be occupied above 45 feet in height. These standards are included in order to provide more variety and visual interest at the upper levels.

Frontage Type:

Each building has certain facade conditions that are called frontage types. Each frontage interacts differently with the street and therefore is appropriate for different areas and building types (see Section 4.4).

4.3.1 Explanation of Standards

A. Maximum Building Height Standards

Height standards regulate the maximum building height. Building height shall be defined pursuant to the W.M.C.

B. Maximum Allowable Footprint per Story

A maximum allowed footprint per story is presented for certain building types. The maximum allowable footprint per story limits the percentage of occupiable space per building story in relationship to the building's ground-floor footprint (See Figure 4-10). For example, a four-story building that limits the maximum allowable footprint of the fourth story to 60 percent may satisfy this requirement by providing stepbacks, decks, patios, building articulation, or similar massing strategies that assure that the fourth story occupies no more than 60 percent of the building. These standards intend to articulate new development and avoid monotonous, block-like building designs in favor of more varied building designs with reduced bulk at the upper stories.

C. Maximum Upper Level Frontage Occupancy

Certain building types have limitations on the percentage of the building frontage that can be occupied above 45 feet in height. These standards are included in order to provide more variety and visual interest at the upper levels. The upper level frontage occupancy is based on the ground-floor plan. Façade portions that are set back at least eight feet from the ground-floor building face are considered as not occupying the upper level frontage.

D. Plane Breaks

Some building types require horizontal or vertical plane breaks or both (see also Figure 4-10). Horizontal plane breaks shall not alleviate the minimum building frontage occupancy requirements from Section 4.2. Building facades facing build-to lines shall provide plane breaks in a manner such that the overall building frontage meets the minimum building frontage occupancy requirements (see Section 4.2.1 B.).

E. Green Space and Landscape

Each building type requires a specific amount of green space to be designated on site. Such green space may either be private, only accessible to the occupants, or open to the general public. Green space may be located at grade, atop a podium or at the rooftop unless the location is restricted by the selected building type. Regardless of location, the design of green space shall maximize solar access. Setbacks less than 15 feet in depth shall not count towards fulfilling the required amount.

Required green space can be shared between adjacent building types, as long as the cumulative minimum requirements for each type are satisfied (see Figure 4-12).

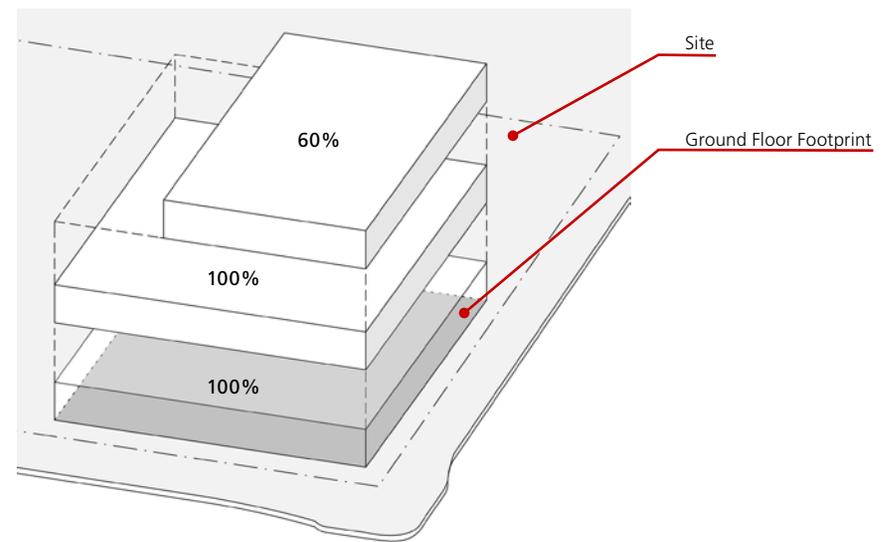


Figure 4-11: Maximum Footprint Per Story Diagram

The maximum footprint per story is computed based on the building's ground floor footprint, not the overall site area.

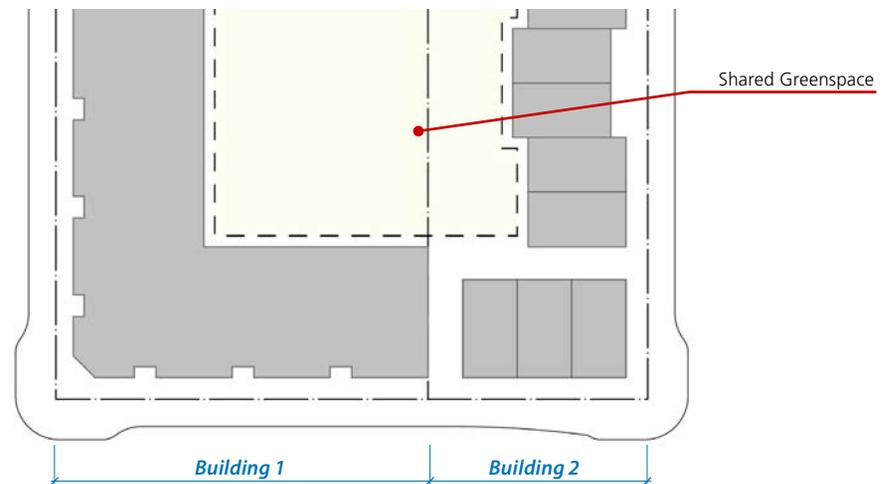


Figure 4-12: Shared Green Space Diagram

Adjacent buildings may combine the required green spaces into one shared space provided the cumulative minimum requirements for each building is met.

4.3.2 Row House



Row House Diagram

Houses with common walls line a street front.



Row House Illustrative Photo

A. Intent Statement

A structure that consists of at least three primary residences with common walls, side by side along the building frontage. The structure has individual garages for each unit, accessed from an alley, or may have a shared structure with dedicated spaces. Row houses may also wrap the podium of a high-rise building type.

B. Lot Width

Not applicable.

C. Façade Width

1. Maximum of 26 feet for each row house unit, except that the facade width of a row house on block corners may be up to 30 feet.
2. The maximum number of attached row houses allowed is 10 townhouses per facade string.

D. Building Height & Massing

1. Maximum height shall be 45 feet.
2. Façade strings shall have at least one *encroachment* per 100 linear feet, such as a porch, balcony, or plane break. The combined length of plane breaks shall occupy at least 10 percent of the façade length.
3. Building faces abutting side streets or yards shall provide at least one horizontal plane break of at least three feet, and one vertical plane break of at least two feet.
4. In a three-story building, a two-story row house can be stacked over a separate ground-floor unit.

5. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.2.1: Height in Stories	Maximum Allowed Footprint per Story			
	1	2	3	4
2	100%	100%	–	–
3	100%	100%	85%	–
4	100%	100%	100%	60%

E. Maximum Upper Level Frontage Occupancy

Not applicable.

F. Frontage Types

Permitted frontage types: dooryard and stoop (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

The primary entrance shall be accessible directly from the street, through the frontage.

H. Parking

1. Garages shall accommodate no more than two cars and shall be integrated into the back of the row house.
2. Podium parking is permitted, in which case a unit may also be accessed from the parking area or internal building corridor, and no individual garage parking is required.
3. Above-ground garage structures shall be concealed from view along the street behind the row houses.

4. Parking stalls shall meet the construction and maintenance standards of the W.M.C.

I. Green Space

1. Amount required. At least 15 percent of the lot area shall be provided as green space.
2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: elevated terraces, patios, verandas, balconies, yards, decks, and roof gardens.
3. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination thereof.

4.3.3 Flex/Loft Building



Flex/Loft Building Diagram

Flex/loft units arranged side by side



Flex/Loft Building Illustrative Photo

Note: Paseos permitted for access to residential units above

A. Intent Statement

An integrated residence and work space, occupied by a single unit. Often two or more such units shall be arranged side by side along the Principal Frontage that has been designed or structurally modified to accommodate joint residential and work occupancy. Flex/loft buildings may also wrap the podium of a high-rise building type.

B. Lot Width

Not Applicable.

C. Facade Width

1. Maximum of 30 feet for each flex/loft unit.
2. The maximum number of attached flex/loft units is 10 per façade string.

D. Building Height & Massing

1. Maximum height shall be 50 feet.
2. Façade strings shall have at least one *encroachment* per 100 linear feet, such as a porch, balcony, or plane break. The combined length of plane breaks shall occupy at least 15 percent of the façade length.
3. Building faces abutting side yards shall provide at least one horizontal plane break of at least three feet, and one vertical plane break of at least two feet.
4. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.3.1: Height in Stories	Maximum Allowed Footprint per Story			
	1	2	3	4
2	100%	100%	–	–
3	100%	100%	100%	–
4	100%	100%	100%	80%

E. Maximum Upper Level Frontage Occupancy

Not applicable.

F. Frontage Types

Permitted frontage types are: storefront, *storefront café*, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

The primary entrance shall be accessible directly from the street, through the frontage, except that primary residential entries may be accessed through work space, through a paseo between units, or from the rear.

H. Parking

1. Individual garage parking may be integrated into the back of the flex/loft building.
2. Podium parking is permitted, in which case a unit may also be accessed from the parking area, and no individual garage parking is required.
3. Above-ground garage structures shall be concealed from view along the street behind the flex/loft building.

4. Parking stalls shall meet the construction and maintenance standards of the W.M.C.

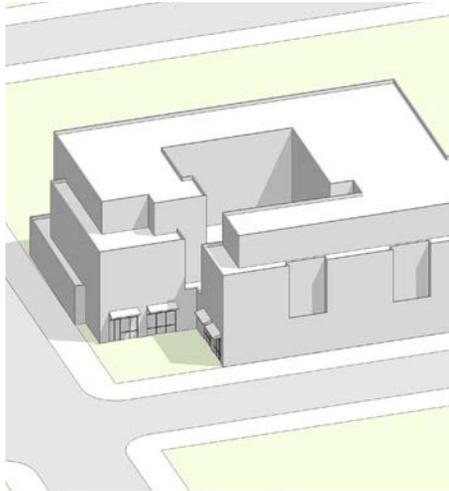
I. Green Space

1. Amount Required. At least 15 percent of the lot area shall be provided as green space.
2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: elevated terraces, patios, verandas, balconies, decks, and roof gardens.
3. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination thereof.

4.3.4 Courtyard Building



Courtyard Building Diagram

A grouping of units around central courtyards.



Courtyard Building Illustrative Photo

Courtyard view of a courtyard building.

A. Intent Statement

A grouping of townhouses or multi-family units arranged around a central courtyard or series of courtyards at grade or above a parking podium. The building may contain residential or commercial uses, and parking is below ground or accommodated in up to two above-grade podium levels.

B. Lot Width

Not applicable.

C. Façade Width

Maximum 200 feet.

D. Building Height & Massing

1. Maximum height shall be 65 feet.
2. The maximum allowed footprint per story shall be determined by the following table:

Table: 4.3.4.1: Height in Stories	Maximum Allowed Footprint per Story			
	1-2	3	4	5+
2	100%	–	–	–
3	100%	80%	–	–
4	100%	100%	80%	–
5+	100%	100%	80%	60%

E. Maximum Upper Level Frontage Occupancy

Portions of facades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. The internal courtyard shall be accessible from the street, through the frontage. Where the internal courtyard is located above the ground plane, a grand public stair is encouraged.
2. The primary entrance to each ground-floor unit shall be directly from the street or courtyard. Entrances shall occur at a maximum interval of 60 feet.
3. Primary access to units above the ground floor shall be through a lobby accessed from the street or the courtyard.

H. Parking

1. Parking may be accommodated in up to two levels of above-ground podium, below ground, or both.
2. A liner of habitable space shall conceal above-ground podium parking garages from view.
3. Residential parking shall be separate from retail parking, except for any residential guest parking.
4. Parking stalls shall meet the construction and maintenance standards of the W.M.C.

I. Green Space

1. Amount Required. At least 15 percent of the lot area shall be provided as green space.
2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: patios, verandas, and courtyards.
3. Dimensions. The minimum courtyard dimension shall be 30 feet on one side for buildings. If the courtyard is surrounded by 3 or more sides or if the building is three or more stories, the minimum dimension on one side shall be 40 feet.
4. *Encroachments*. Encroachments into the green space are permitted on all sides, provided that the minimum 30-foot dimension is maintained, exclusive of the *encroachments*.
5. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space. Communal green spaces shall provide high quality amenity and be easily accessible for all residents.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination of thereof.

4.3.5 Urban Block Building



Urban Block Building Diagram

A building type that can accommodate a variety of uses



Urban Block Building Illustrative Photo

A. Intent Statement

A building designed for occupancy by retail, service, office, and/or residential uses on the ground floor, with upper floors also configured for office and/or residential uses, however two-story retail is permitted. Parking is accommodated below ground.

B. Lot Width

Not applicable.

C. Facade Width

Maximum 225 feet. Façades greater than 175 feet in length must have at least one façade break of at least 20 feet in length and 10 feet in depth.

D. Building Height & Massing

1. Maximum height shall be 65 feet.
2. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.5.1: Height in Stories	Maximum Allowed Footprint per Story			
	1-3	4	5	>5
2-3	100%	–	–	–
4-5	100%	85%	75%	–
>5	100%	100%	85%	75%

E. Maximum Upper Level Building Frontage Occupancy

Portions of façades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, stoop, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary entrances to upper floors shall be accessed through: 1. an interior courtyard or 2. a lobby, which is accessed directly from the street.
2. Primary access to the ground-floor space shall be directly from the street and shall occur at a maximum interval of 60 feet. For urban block buildings in the retail core fronting Westminster Boulevard and Gray Street see entrance standards in Section 4.5.3 A.2.
3. Primary retail entrances shall remain accessible and unlocked during regular business hours.

H. Parking

1. Parking may be accommodated in up to two levels of above-ground podium, below ground, or both.
2. A liner of habitable space shall conceal above-ground podium parking garages from view.
3. Parking stalls shall meet the construction and maintenance standards of the W.M.C.

I. Green Space

1. Amount Required. At least 15 percent of the lot area shall be provided as green space

2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: patios, verandas, courtyards, and roof gardens.
3. Dimensions. Each green space shall have a minimum dimension of 20 feet on each side.
4. *Encroachments*. Encroachments into the green space are permitted on all sides of the space, provided that the minimum 20-foot dimension is maintained, exclusive of the *encroachments*.
5. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination of thereof. Landscaping in pots or planters may be included in computing the total landscaped area.

4.3.6 Liner Building with Garage



Liner Building Diagram

A building suitable for a variety of uses wraps a parking structure



Liner Building Illustrative Photo

Street view of a liner building. The facade does not reveal the parking use behind.

A. Intent Statement

A building and garage ensemble where the building directly fronts the street and wraps around an above-ground garage. The building is designed for occupancy by a mixture of uses. The garage can either be attached or detached to the building.

B. Lot Width

Not applicable.

C. Facade Width

1. Maximum 225 feet. Façades greater than 175 feet in length must have at least one façade break of at least 20 feet in length and 10 feet in depth.
2. Where the garage length exceeds 225 feet, a second similar building type may be attached and interconnected, but it must appear as a separate building and have its own entrance from the street. In this situation a façade break is not required.

D. Building Height & Massing

1. Maximum height shall be 65 feet. The building shall be no less than 35 feet tall. The maximum garage height shall be 45 feet.
2. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.6.1: Height in Stories	Maximum Allowed Footprint per Story			
	1-3	4	5	>5
2-3	100%	–	–	–
4	100%	90%	–	–
5	100%	90%	75%	–
>5	100%	100%	85%	75%

E. Maximum Upper Level Building Frontage Occupancy

Portions of façades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, stoop, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary entrances to upper floors shall be accessed through an interior courtyard or lobby, accessed directly from the street.
2. Primary access to each ground-floor space shall be directly from the street and shall occur at a maximum interval of 60 feet. For liner buildings in the retail core fronting Westminster Boulevard and Gray Street see entrance standards in Section 4.5.3 A 2.
3. All retail spaces should be accessed from a ground-floor, single-tenant entry along a street, courtyard, or Paseo.
4. Primary retail entrances shall remain accessible and unlocked during regular business hours.
5. In addition to the building's required primary entrances, there may be ancillary entrances to the building from parking garages.

H. Parking

Parking stalls shall meet the construction and maintenance standards of the W.M.C.

I. Green Space

1. Amount Required. At least 10 percent of the lot area shall be provided as green space.
2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: patios, verandas, courtyards, and roof gardens.
3. Dimensions. Each green space shall have a minimum dimension of 20 feet on each side.
4. Encroachments. *Encroachments* into the green space are permitted on all sides of the space, provided that the minimum 30-foot dimension is maintained, exclusive of the *encroachments*.

5. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination of thereof. Landscaping in pots or planters may be included in computing the total landscaped area.

4.3.7 Exposed Garage Building



Exposed Garage Building Diagram

Active ground-floor uses line the exposed parking structure.



Exposed Garage Building Illustrative Photo

Ground-floor uses line the exposed garage building.

A. Intent Statement

A garage building type that provides space for active ground-floor uses along street frontages. Exposed garage levels are architecturally treated.

B. Lot Width

Not applicable.

C. Facade Width

Maximum 240 feet may be exposed at frontage.

D. Building Height & Massing

Maximum height shall be 55 feet.

E. Maximum Upper Level Frontage Occupancy

Not applicable.

F. Frontage Types

Permitted frontage types are: storefront, *storefront café*, *urban frontage*, *forecourt* (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary access to each ground-floor space shall be directly from the street and shall occur at a maximum interval of 60 feet.
2. All retail spaces should be accessed from a ground-floor, single-tenant entry along a street, courtyard, or alley.
3. Primary retail entrances shall remain accessible and unlocked during regular business hours.

H. Parking

1. All parking facades visible from a public right of way shall be architecturally treated. The total opening area shall not exceed 60 percent of the façade area and shall not be less than 40 percent of the façade area. Continuous ribbon openings are not permitted.
2. Along street frontages, habitable uses shall line the ground floor unless otherwise permitted in the block standards (see Section 4.2.). Habitable spaces shall have a minimum depth of 20 feet measured perpendicular to the property line from the exterior face of the building facing the street to the back of the habitable space
3. Parking stalls shall meet the construction and maintenance standards of the W.M.C.

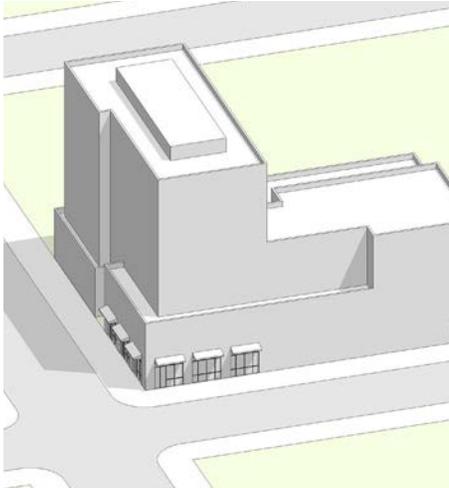
I. Green Space

Amount Required. None.

J. Landscape

All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving and planters is encouraged.

4.3.8 Podium High-Rise Building



Podium High-Rise Diagram

A tower building mass may exceed the base height limit of 65 feet.



Podium High-Rise Illustrative Photo

A. Intent Statement

A multi-level building organized around a central core with the first 2-5 floors expressed as a Podium. The building is composed as a Tower and a podium (the base), which may contain a parking garage.

B. Lot Width

Not applicable.

C. Facade Width

Maximum 300 feet.

D. Building Height & Massing

1. Maximum podium height is 65 feet; minimum height is 35 feet.
2. A high-rise tower may exceed the podium height. The length to width ratio for the tower shall be no greater than 2:1. The maximum floor plate of the tower shall be 20,000 SF.
3. The tower shall step back from the face of the podium a minimum of 10 feet, measured perpendicular to the property line.

E. Maximum Upper Level Building Frontage Occupancy

1. Portions of facades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.
2. Portions of facades above 65 feet in height:
 - if less than 100 feet in length shall occupy no more than 90% of the primary façade plane established on the lower floors,

- if between 100 and 150 feet in length shall occupy no more than 80% of the primary façade plane established on the lower floors, and
- if greater than 150 feet in length shall occupy no more than 70% of the primary façade plane established on the lower floors

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, stoop, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary entrances to upper floors shall be accessed through an interior courtyard or lobby, accessed directly from the street.
2. Ground floors shall contain habitable building space and access to each ground-floor space shall be directly from the street and shall occur at a maximum interval of 60 feet. For podium high-rise buildings in the retail core fronting Westminster Boulevard and Gray Street see entrance standards in Section 4.5.3 A 2.
3. All retail spaces shall have their primary access from a ground-floor, single-tenant entry along a street, courtyard, or paseo.
4. The primary retail entrances shall remain accessible and unlocked during regular business hours.
5. In addition to the building's required primary entrances, there may be ancillary entrances to the building from parking garages and areas.

H. Parking

1. If accommodated in an above-ground garage, parking shall be concealed from view along the street for the first 21 feet of height through a liner of habitable space.
2. Above 21 feet, above-ground garages shall be screened from view along the street by habitable space or by landscaping, green screens, cladding, or the appearance of architectural features, such as windows, or a combination thereof.
3. Parking stalls shall meet the construction and maintenance standards of W.M.C. 11-7-4 (B).

I. Green Space

1. Amount Required. At least 30 percent of the lot area shall be provided as green space.
2. Types. Permitted green space types that count toward the satisfaction of the required amount of green space are: patios, verandas, courtyards, and roof gardens. At least one half of the required green space must be common, usable by all residents of the building.
3. Dimensions. Each common green space shall have a minimum dimension of 30 feet on each side. Each private green space shall have a minimum dimension of six feet on one side.
4. Encroachments. *Encroachments* into the common green space are permitted on all sides of the space, provided that the minimum 30-foot dimension is maintained, exclusive of the *encroachments*.

5. Design. The green space area must be open to the sky, except for any allowable *encroachments* (see Section 4.5.9) and any shade structures within the space.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving is encouraged.
2. At least 25 percent of the required on-site green space shall be planted with ground cover, shrubs, trees, or a combination of thereof. Landscaping in pots or planters may be included in computing the total landscaped area.

4.3.9 Urban Anchor Building



Urban Anchor Building Diagram



Urban Anchor Building Illustrative Photo

A. Intent Statement

The urban anchor building type accommodates the need for large-footprint anchor retailers or movie theaters while providing active uses at secondary frontages. Ground-floor storefronts or other liner uses avoid exposing blank walls on street fronts.

B. Lot Width

Not applicable

C. Facade Width

No limit, except that a maximum of 150 feet of the anchor use may be exposed to a building frontage line. Anchor buildings that are longer than 150 feet must be lined with other uses for the portion of the frontage exceeding 150 feet.

D. Building Height & Massing

1. Maximum height shall be 65 feet.
2. Minimum height is 35 feet.
3. The maximum anchor floor plate is 60,000 SF. The City may grant an exception for cinemas, concert halls, or other live performance spaces.
4. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.9.1: Height in Stories	Maximum Allowed Footprint per Story			
	1-3	4	5	
2-3	100%	–	–	
4	100%	90%	–	
5	100%	75%	75%	

E. Maximum Upper Level Building Frontage Occupancy

Portions of facades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, and stoop (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary entrances to upper floors shall be accessed through an interior courtyard or lobby, accessed directly from the street.
2. Primary access to each ground-floor anchor shall be directly from the street and shall occur at a maximum interval of 200 feet. Liner buildings shall be accessible directly from the street and shall occur at a maximum interval of 60 feet. All retail spaces should be accessed from a ground-floor, single-tenant entry along a street, courtyard, or alley. For anchors in the retail core fronting Westminster Boulevard and Gray Street see entrance standards in Section 4.5.3 A.2.
3. Primary retail entrances shall remain accessible and unlocked during regular business hours.
4. In addition to the building's required primary entrances, there may be ancillary entrances to the building from parking garages and areas.

H. Parking

1. Above-ground garages shall be concealed from view along the street for the first 21 feet of height through a liner of habitable space.
2. Above 21 feet, above-ground garages shall be screened from view along the street by habitable space or by landscaping, green screens, or cladding.
3. Parking stalls shall meet the construction and maintenance standards of W.M.C. 11-7-4 (B).

I. Green Space

Amount Required. None.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas, the use of permeable paving is encouraged.

4.3.10 Urban Supermarket



Urban Supermarket Diagram



Urban Supermarket Illustrative Photo

A. Intent Statement

This building type provides additional flexibility for developments incorporating a supermarket use while ensuring compatibility with the new downtown's urban, mixed-use environment. Housing or office space may be built above.

B. Lot Width

Not applicable

C. Façade Width

Maximum 300 feet.

D. Building Height & Massing

1. Maximum height shall be 65 feet. 110 feet shall be permitted where blocks allow the podium high-rise building type. In such cases the podium high-rise building type height and massing and green space standards apply (see Section 4.3.7).
2. Minimum height shall be 35 feet.
3. The maximum supermarket floor plate is 65,000 SF.
4. The maximum allowed footprint per story shall be determined by the following table:

Table 4.3.10.1: Height in Stories	Maximum Allowed Footprint per Story			
	1-3	4	5	
1-3	100%	–	–	
4	100%	90%	–	
5	100%	75%	75%	

E. Maximum Upper Level Building Frontage Occupancy

Portions of facades above 45 feet in height and greater than 150 feet in length shall occupy no more than 80% of the primary façade plane established on the ground floor.

F. Frontage Types

Permitted frontage types are: *forecourt*, storefront, *storefront café*, *urban frontage*, stoop, and dooryard (see Section 4.4). Developments must also comply with the permitted frontage types of the block development standards (see Section 4.2).

G. Pedestrian Access & Entries

1. Primary entrances to upper floors shall be accessed through an interior courtyard or lobby, accessed directly from the street.
2. Primary access to each ground-floor space shall be directly from the street and shall occur at a maximum interval of 60 feet. A supermarket use may reduce the entry frequency to 150 feet on one blockfront. For urban supermarkets in the retail core fronting Westminster Boulevard and Gray Street see entrance standards in Section 4.5.3 A.2.
3. All retail spaces should be accessed from a ground-floor, single-tenant entry along a street, courtyard, or alley.
4. Primary retail entrances shall remain accessible and unlocked during regular business hours.
5. In addition to the building's required primary entrances, there may be ancillary entrances to the building from parking garages and areas.

H. Parking

1. Above-ground garages shall be concealed from view along the street for the first 21 feet of height through a liner of habitable space.
2. Above 21 feet, above-ground garages shall be screened from view along the street by habitable space or by landscaping, green screens, or cladding.
3. Parking stalls shall meet the construction and maintenance standards of W.M.C. 11-7-4 (B).

I. Green Space

Amount Required. None.

J. Landscape

1. All green space shall be landscaped or hardscaped. In hardscaped areas the use of permeable paving is encouraged.

4.4 FRONTAGE TYPE STANDARDS AND GUIDELINES

A building's frontage is the interface between the public realm and private development. This Plan recognizes that the successful design of this interface significantly contributes to the realization of an active and engaging urban environment.

Buildings within the Plan area have ground-floor frontages that are human-scaled, provide visual interest, and access to ground-floor uses. This section provides a palette of prototypical frontage types that are permitted. Standards include dimensional criteria, criteria for openings, as well as criteria for the ground plane immediately adjacent to the frontage, such as minimum glazing (see Figure 4-13).

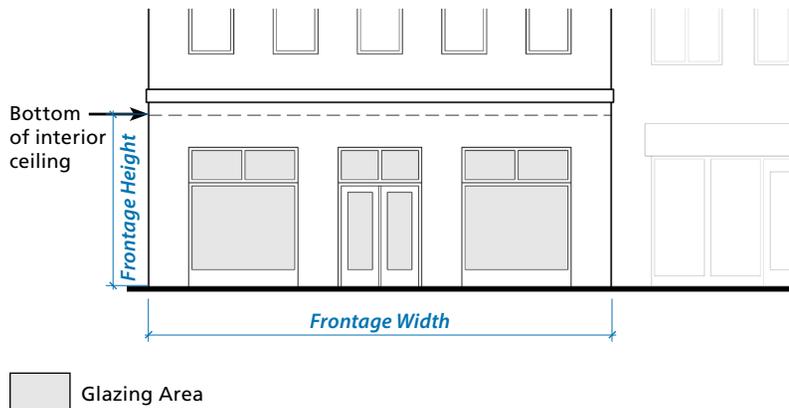


Figure 4-13 : Minimum Frontage Glazing Diagram

The frontage glazing area shall be measured from the finished floor to the bottom of ceiling of the ground floor.

4.4.1 Explanation of Standards

A. Frontage Intent Statement

This statement describes the building-to-street relationship that each frontage type is meant to achieve.

B. Entries

These standards address entries at the block-fronts, not those that are internal to the site.

C. Dimensions

Specific dimensions of features like massing, entry height, openings, and setbacks are delineated here.

D. Paving and Landscaping

This standard addresses the area between the property line and building face.

E. Furnishing Zone

This standard addresses furnishing within front setbacks.

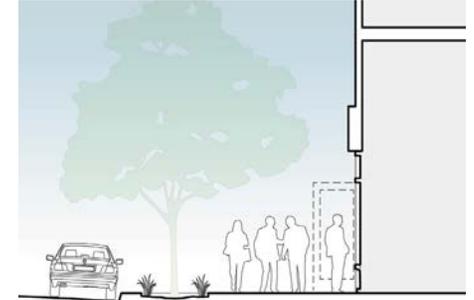
F. Additional Standards and Guidelines

These standards and guidelines provide additional direction in shaping the appropriate building-to-street relationship. They address glazing at the ground floor, frontages, and entries.

G. Storefront Guidelines

This standard addresses the design of building frontages, such as maximum length of a blank wall.

4.4.2 Storefront



Storefront Illustrative Section

Ground floor uses open directly to the sidewalk.



Storefront Illustrative Photo

A. Intent Statement

Storefront frontages provide direct access to ground-floor spaces that are located adjacent to the sidewalk. Storefronts are typically associated with retail uses but may accommodate other uses as permitted by the regulating plan (see Section 3). Where permitted, storefront frontages may provide outdoor seating areas or outdoor displays or both.

B. Entries

Entries should be set at the adjacent sidewalk or within an alcove that is adjacent to a sidewalk.

C. Dimensions

Storefronts shall be between 12 to 25 feet high, measured from the finished floor to the bottom of ceiling of the storefront space. Storefront spaces shall be set no more than twelve inches above the adjacent sidewalk at the primary entrance.

D. Paving and Landscaping

The area between the property line and the building face shall be paved per Section 3.5.1.

E. Furnishing Zone

Where permitted, outdoor seating may be provided either in front setbacks (see Section 3.2). Product displays (e.g. flowers, food, merchandise displays) are encouraged near storefront entries.

F. Additional Standards

1. At least 60 percent of the storefront façade area at the ground floor shall be glazed (see Section 4.4). Glazing shall be transparent and clear. Opaque,

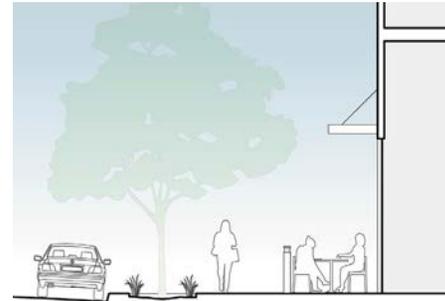
highly reflective, and dark tinting are not permitted. The sill height of a storefront window shall be no more than 30 inches high measured from the adjacent finished sidewalk.

2. Unoccupied storefronts may be temporarily covered from the inside with white or light color paper, fabric or film, which may contain a graphic image or otherwise permitted signs.

G. Storefront Guidelines

The maximum length of blank walls facing the street is limited to 15 horizontal feet for any one stretch.

4.4.3 Storefront Café



Storefront Café Illustrative Section

Outdoor seating is located immediately adjacent to a ground-floor use.



Storefront Café Illustrative Photo

A. Intent Statement

Storefront cafés provide ground-floor café and restaurant spaces directly accessible from the adjacent sidewalk. *Storefront café* frontages are similar to storefront frontages but provide specific provisions for outdoor seating.

B. Entries

Entries should be set at the adjacent sidewalk. *Storefront cafés* facing 88th Avenue and overlooking the South Park may provide outdoor seating areas on raised terraces.

C. Dimensions

Storefront cafés shall be between 12 to 25 feet high, measured from the finished floor to the bottom of ceiling of the storefront space. Storefront spaces shall be set no more than twelve inches above the adjacent sidewalk or terrace.

D. Paving and Landscaping

The area between the property line and the building face shall be paved per Section 3.5.1.

E. Furnishing Zone

Where permitted, outdoor seating may be provided either in front setbacks (see Section 3.4). Product displays (e.g. flowers, food, merchandise displays) are encouraged near storefront entries.

F. Additional Standard and Guidelines

Same as storefront frontage type (see Section 4.4.1 F.).

4.4.4 Dooryard



Dooryard Illustrative Section

A small landscaped yard separates the building from the sidewalk. The building entry may be raised, but need not be.



Dooryard Illustrative Photo

A. Intent Statement

Dooryard fronts are located in front setbacks and provide small landscaped and paved yards at building entrances. Dooryards are often enclosed by low walls, fences, or hedges.

B. Entries

Attached single-family buildings (row houses) should have primary entries accessible directly from the street.

Ground-floor units in multi-family buildings with corridors may have the primary entry from a corridor accessible from a common building lobby, directly from the sidewalk via a dooryard, or both.

C. Dimensions

Not applicable.

D. Paving and Landscaping

Dooryards should be planted with grass, shrubs, or other ground cover. Walks shall be paved. Low retaining walls, fences, or hedges may enclose a dooryard. Walls and hedges shall not exceed three feet in height measured from the adjacent sidewalk.

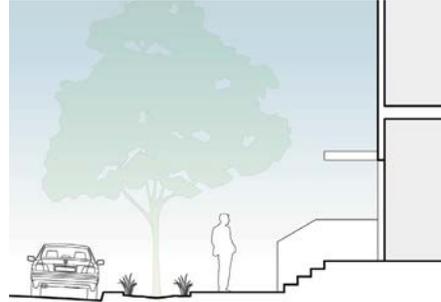
E. Furnishing Zone

Loose furniture is permitted in dooryards.

F. Additional Standard and Guidelines

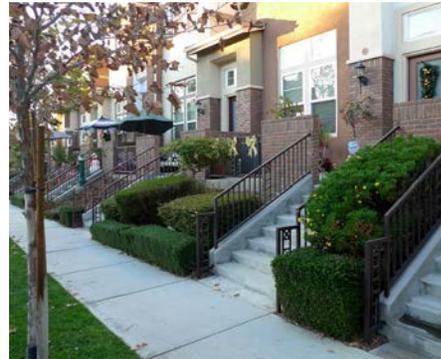
Where block development standards permit dooryard frontages and stoop frontages, frontage elements of these frontage types may be combined.

4.4.5 Stoop



Stoop Illustrative Section

The entry to a building is raised above the sidewalk.



Stoop Illustrative Photo

A. Intent Statement

Stoops are small staircases leading to the entrance of a building. The stoop elevation provides some privacy between the sidewalk and ground-floor uses. *Stoops* may be covered.

B. Entries

Entries fronting on public streets shall face the public sidewalk.

B. Dimensions

Stoops shall be at least four feet deep and four feet wide. The stoop entry should not be raised more than three feet above the adjacent sidewalk.

D. Paving and Landscaping

Yards should be planted with grass, shrubs, or other ground cover. Walks shall be paved.

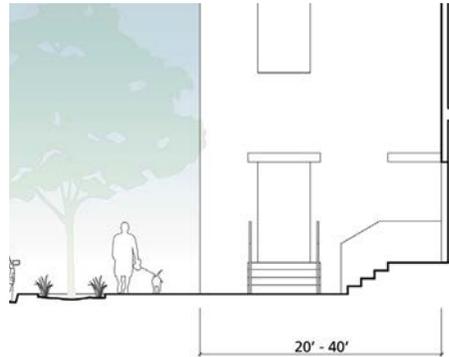
E. Furnishing Zone

None permitted.

F. Additional Standards

1. Awnings or canopies may cover *stoops*.
2. Where block development standards permit dooryard frontages and stoop frontages, frontage elements of these frontage types may be combined.

4.4.6 Forecourt



Forecourt Illustrative Section

The building entry is located off a forecourt. The entry may or may not be raised above the sidewalk level.



Forecourt Illustrative Photo

A. Intent Statement

Forecourts are open areas located at primary building entrances. They may be designed as gardens or as paved courtyards. Frontages utilizing a *forecourt* must comply with minimum frontage occupancy standards (see Section 4.2).

B. Entries

The *forecourt* shall enter from the adjacent sidewalk. Building entries opening onto the *forecourt* shall be at the finished floor of the *forecourt* or may be raised up to three feet above the *forecourt*.

C. Dimensions

1. *Forecourts* shall be set at grade or may be elevated up to 18 inches above the adjacent sidewalk.
2. Depth of the *forecourt* shall be between 10 and 40 feet.
3. Width of the *forecourt* shall be between 20 to 40 feet.

D. Paving and Landscaping

Forecourts may be planted with grass, shrubs, or other ground cover or be paved. All walks shall be paved.

E. Furnishing Zone

Outdoor furniture is permitted in *forecourts*. High quality, durable fixed benches and planter pots are encouraged. Water features are permitted.

F. Additional Standards and Guidelines

1. *Forecourts* should be open to the sky. Porches are not permitted.
2. *Forecourts* may be gated.

4.4.7 Urban Frontage



Urban Frontage Illustrative Section

An urban frontage type for residential or commercial ground-floor uses.



Urban Frontage Illustrative Photo

A. Intent Statement

An *urban frontage* is suitable for residential lobbies or commercial/office uses. It provides access to ground-floor uses, but is primarily characterized by windows facing the sidewalk.

Unlike storefronts, there is no minimum ground floor height.

B. Entries

Urban frontages shall enter from the sidewalk. Entries should be articulated by canopies or awnings.

C. Dimensions

Urban frontages shall be set at grade or may be elevated up to 12 inches above the adjacent sidewalk.

D. Paving and Landscaping

Urban frontages are characterized by hardscape and may include landscaping where permitted by the street standards (see Chapter 3).

4.5 ADDITIONAL BUILDING DESIGN STANDARDS AND GUIDELINES

The additional standards and guidelines of this section apply to all development in the Plan area. They address the composition of buildings as well as functional aspects of building, parking, and green space design. The goal of this section is to ensure that development within the new downtown is consistent with the goal of human-scale mixed-use environment in which each individual building furthers the overall Plan vision.

4.5.1 Building Massing, Scale, and Architecture

The specific criteria included throughout these design standards and guidelines have been included to achieve a design that is consistent with the general massing, scale and architectural criteria articulated in this section 4.5.1, such that a building that is consistent with the specific criteria and standards will also be consistent with the overall massing, scale and architectural vision.

A. Standards

1. Massing and Scale Variation. The massing, scale, and architectural style of proposed buildings in the Plan area shall be varied to create a unique, attractive project and avoid a uniform and monotonous urban form. Employ techniques to break the building mass through interlocking volumes of differing heights and widths to avoid monolithic building. Incorporate a diversity of building scales and massing, such that the resulting design appears as a

neighborhood that has grown over time.

2. Minor Façade Plane Breaks. Façade plane breaks create a visual rhythm along the street through offsets, recesses, stepped facades, varying materials or colors, and architectural features such as balconies, awnings, *projections* or similar elements. The façade plane shall be broken by a minor break at least every 45 feet.
3. Blank Walls. Blank walls (defined as having no active use, glazing or doorway) shall be limited to 20% or 40 feet of the Building Façade, whichever is greater.
4. Corner buildings shall have architectural treatments such as increased height and building mass or entry designs such as angled or curvilinear form to help “anchor” corner buildings and further define the street.

B. Guidelines

1. Variety. Buildings should be composed of a variety of forms and contrasting shapes and should employ attractive and complementary building materials and architectural features.
2. Scale. In general, the overall scale, massing, roof form, materials, and architectural style of new structures shall provide a variety of forms, depth and texture, and encourage a cohesive neighborhood character by building new structures at a scale that is appropriate to the human-scaled environment of the new downtown.
3. Wall planes. Building massing should include a variation in wall planes and height as well as roof forms to reduce the perceived scale of the building.

4. Building Stepbacks. Building stepbacks at the upper stories can transition between different building heights. Where a taller building adjoins a shorter building, building stepbacks are encouraged.
5. Major Façade Plane Breaks. Major façade plane breaks create visual interest along long street frontages and break the massing of large buildings through vertical breaks in the building plane, reveals or recesses, or material changes. See Figure 4-10 for definition and illustration of vertical and horizontal plane breaks. Vertical breaks in the building plane shall be at least 24 inches from the adjacent façade plane, measured perpendicular to the property line. Reveals or recesses shall be at least five feet deep. Changes in color or material texture are not permitted as major façade plane breaks. Major façade plane breaks are encouraged to occur at least once every 100 feet measured parallel to the property line.
6. Architectural Style. The architecture of the building shall clearly delineate an architectural style, and shall not appear as a simplified version thereof, with appropriate fenestration patterns, architectural features, proportions and materials consistent with the style.

4.5.2 Building Facades

A. Standards

1. Fenestration and Articulation. Buildings shall have fenestration that establishes a clear pattern on the facade (with special attention paid to facades that are visible from a public street) and that provides depth and additional articulation.



Building Massing (4.5.1)

Large windows break the rhythm of balconies and accentuates the building corner.



Varied Building Massing (4.5.1)

Bays, recesses, roof variations visually break the building mass.



Facade Plane Breaks (4.5.1)

A series of vertical breaks in the facade plane enriches a long building facade.

- Maximum Façade Length. Building facades longer than 175 feet, measured along the property line, shall vary the façade such that the resulting façade segments appear to be individual building façades. Façade segments shall be separated by continuous vertical datum lines on either side of which the facade appearance differs. Façade segments can be differentiated by variations in fenestration size and rhythm, façade material, texture, color, pattern, or a combination thereof. Façade segments should generally correspond to interior uses and relate to ground-floor entries.

B. Guidelines

- Human Scale. Human scale proportions and architectural building details that emphasize and reflect the presence and importance of people are encouraged.
- Building Design. The design of all buildings should be of a high quality and character appropriate to development in the new downtown.
- Façade Massing. Massing offsets, fenestration, varied textures, openings, recesses, and design accents are strongly encouraged to ensure there are no unarticulated walls and monolithic roof forms.
- Architectural elements such as stepbacks, overhangs, balconies, verandas, and porches that add architectural character are encouraged.
- Shade and Shadow. Employing shade and shadow by reveals, surface changes, overhangs and/or sunshades to provide visual interest on facades exposed to the sun is encouraged.

- One-Story Elements. One-story architectural elements and massing should be incorporated into two and three-story building designs to the greatest extent possible.

4.5.3 Entrances

A. Standards

- Primary Entrance. The primary entrance to buildings shall be oriented to the street front, rather than to the parking lot or garage, alley, or interior of lot.
- Frequency at Retail Core. At buildings fronting Westminster Boulevard and Gray Street between 89th and 90th Avenues, entrances shall occur at a maximum interval of 45 feet.

B. Guidelines

- Secondary Entrances. Side or rear building entrances should always be accompanied by a front, street-facing entrance.
- Entrance Articulation. Special paving, lighting, and landscaping should be included at primary entrances to clearly identify the entrance and to enhance the overall building design.

4.5.4 Passageways

A. Standards

- Width. Pedestrian passageways shall be no less than 15 feet wide.
- Height where Covered. If pedestrian passageways are covered, they require a floor to ceiling height of at least two times their width, but no greater than three times their width.

- Design. Passageways shall be lighted and designed to be safe and inviting.

B. Guidelines

- Pedestrian Access. Pedestrian passageways should be introduced to increase access within and across blocks.
- Location. Pedestrian passageways may be open or roofed, and may go between or through buildings, to courtyards, parking areas, or civic spaces.

4.5.5 Windows

A. Standards

- Design. Outer surface of window frames set within masonry, stucco or simulated masonry or stucco walls shall be recessed from the wall surface by at least four inches. This does not apply when windows face alleys. Pop-in muntins are not permitted below the third floor.
- Glazing. Highly-reflective, mirrored, heavily-tinted and opaque glazing are not permitted (except that opaque glazing may be used as spandrel glass). Window glazing must be transparent with clear or limited UV tint so as to provide views to and from the inside of the building and the street.

B. Guidelines

- Orientation. Windows should overlook public areas to allow for increased safety.
- Location. Regardless of architectural style, it is recommended that windows be located in such a way so as to help avoid the creation of blank walls.



Human-Scale Architecture (4.5.2)

Variation in form and color create an enlivened block frontage.



Entrances (4.5.3)

A canopy, lighting, and a slight recess accentuate the primary entrance.



Windows (4.5.5)

Windows are recessed from the exterior wall surface.

3. Exterior Shutters. If exterior shutters are used, they should be sized and mounted appropriately to fit the window (with appropriate hardware even if actually non-operable).
4. Ribbon Windows. Continuous horizontal bands of windows with little or no articulation between adjacent window units, or ribbon windows, are strongly discouraged.

4.5.6 Ventilation

A. Standards

1. Orientation. Windows, vents, and courtyards shall be placed and oriented to enhance cross-ventilation and cooling.

B. Guidelines

1. Air Quality. Air ventilation from outdoors is encouraged to improve indoor air quality for occupant comfort and wellbeing.

4.5.7 Private Green Space

A. Guidelines

1. Design. Design common open spaces with attractive landscaping, materials and amenities that provide a variety of opportunities for interaction, gathering and unstructured or informal play and use
2. Location. Ensure that private green spaces are provided as an integral element of the development. Green space amenities should not be placed in "leftover" spaces.
3. Community Rooms. Where community rooms are planned, locate them adjacent to green spaces.

4. Landscaping. Utilize plantings that are in scale with the space; e.g. smaller ornamental trees and perennials are more appropriate for a courtyard space. Select plants that tolerate extreme hot and cold temperatures and require minimal irrigation.
5. Irrigation. Use automatic irrigation with the understanding that winter hand-watering will be required. Quick couplers and hose bibs should be provided.
6. Amenities. Incorporate site furnishing such as benches, trash receptacles, bike racks, and lighting. Where canopy trees are not feasible, provide other forms of shade, such as pergolas, trellises, sun shades or arbors. At designated dog areas or lawn areas, dog stations should be provided.
7. Lighting. Provide lower-height pedestrian lighting consistent with Section 4.5.9
8. Maintenance. Ensure that design of the green space factors in maintenance of planters, watering and snow removal and storage.
9. Drainage. Direct drainage from private green spaces via underground systems or an alternative system that is integrated with the overall storm drainage system of the development and consistent with the Drainage Plan in the Appendix of this Plan.

4.5.8 Interior Courtyards

Required green space may be accommodated in interior courtyards located on the ground plane or on a podium, as allowed by the relevant building type (see Section 4.3).

A. Standards

1. When provided, interior courtyards shall adhere to the following standards:
2. Design. Interior courtyards shall include ample seating and planting areas. Low walls and steps may be used as alternative forms of seating.
3. Shade Trees. Interior courtyard landscaping shall include shade trees or shading devices. At least one 3 inch specimen tree is required per 1,000 SF of courtyard area.
4. Lighting. Lighting shall be provided that illuminates the courtyard, but does not negatively impact surrounding buildings, consistent with Section 4.5.9.
5. Dimensions. Minimum courtyard dimension shall be 30 feet on one side (exclusive of *encroachments*) unless indicated otherwise in the building types. If the courtyard is surrounded by 3 or more building frontages, the minimum dimension on one side shall be 40 feet.

B. Guidelines

1. Blank Walls. Blank walls should be avoided inside the perimeter of the courtyard.

4.5.9 Encroachments and Projections

The following are the permitted *encroachments* and *projections* into the front setbacks.

Projections into the public right-of-way require City approval.



Interior Courtyard (4.5.8)

Landscape and hardscape create intimate spaces in this courtyard.



Encroaching Habitable Space (4.5.9)

Illustrative image of encroaching bays and stoops.



Projecting Canopies (4.5.9)

Canopies create a rhythm along the streetfront and accentuate the building entrances.

A. Awning and Canopy Encroachment and Projection Standards

1. The following standards apply to awnings and canopies that encroach into front setbacks or public rights-of-way:
2. Projection. May project up to the property line or 33 percent of the distance between the building face and the curb, whichever is less.
3. Support. Awnings and canopies shall be attached to the building. Support structures that connect to the ground are not permitted.
4. Clearance. Minimum vertical clearance for awnings and canopies is eight feet if it is removable or retractable and 12 feet if is fixed or permanent. Awnings shall not obscure storefront signs.
5. Materials. Canvas and high-quality fabric shall be used; vinyl or similar materials are not permitted.

B. Habitable Projecting or Encroaching Space Standards

1. Allowable Projection. *Habitable projecting* or *encroaching spaces* are a portion of the building enclosed by walls and a roof that extends beyond the building face (i.e. bay windows and other architectural *projections*). They may project up to three feet from the building face, but shall not extend beyond the property line.
2. Length Along Building Face. No individual habitable projecting or encroaching space may exceed 15 feet in horizontal length.
3. Clearance. Minimum vertical clearance of projecting spaces is 21 feet from the adjacent sidewalk grade on storefront or *storefront café* frontages and nine feet on

other frontage types (see Section 4.3 for frontage types).

4. Encroaching habitable spaces are not permitted along Westminster Boulevard, Gray Street, Eaton Street, and Central Parkway.

C. Non-Habitable Projecting or Encroaching Space Standards

1. Balconies. *Non-habitable projecting* or *encroaching spaces* are spaces used by occupants that are not enclosed by walls and a roof, such as balconies. They shall not extend more than six feet from the building face, or beyond the property line.
2. Clearance. All *projections* shall have a minimum vertical clearance of nine feet from the adjacent sidewalk.
3. Balconies facing Westminster Boulevard, Gray Street, Eaton Street, and Central Parkway shall not project more than four feet from the *building face*.

D. Projecting Habitable and Non-Habitable Space Standards

1. Total Horizontal Length of Projecting Spaces. The total combined length of habitable and non-*habitable projecting spaces* along the building face shall not exceed 67 percent of the total length of the building face to which they are attached.
2. Total Horizontal Length of Encroaching Spaces. The total combined length of habitable and non-*habitable encroaching spaces* along the building face shall not exceed 50 percent of the total length of the building face to which they are attached.

E. Stoops

1. *Encroachment. Stoops* may encroach up to eight feet from a building face, but shall not extend beyond the property line.

F. Outdoor Furnishing Zones

1. General. Outdoor furnishings such as seating or merchandise displays shall comply with Chapter 3: Circulation & Streetscape Design.

G. Subterranean Parking in Front Setbacks

1. Location in Setbacks & Alleys. Subterranean parking may extend into the front setback, up to the property line (See Figure 4-14). Subterranean parking may also be located under alleys that are located within a development block if utilities servicing the block are not interrupted.

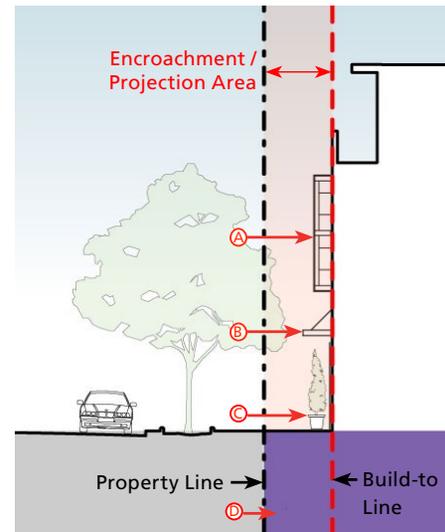


Figure 4-14: Encroachment and Projections Diagram

- A. Projecting habitable space
- B. Projecting canopy
- C. Encroaching street furniture
- D. Subterranean parking (purple area)



Projecting Balconies (4.5.10)

Projecting balconies used sparingly accent, but do not dominate.



Recessed Balconies (4.5.11)

Balconies are set back from the primary building face.



Wood Fence (4.5.12)

Fences and walls may delineate property lines between adjoining private properties.



Hedge Screening Service Area (4.5.12)

A hedge and other plantings effectively screens a service area from view.

4.5.10 Awnings and Shade Devices

The following standards and guidelines apply to awnings and shade devices that are not located at front setbacks or build-to lines.

A. Standards

1. Clearance. Awnings and shade devices shall maintain a minimum clearance of eight feet above the adjacent floor level.
2. Materials. Materials for awnings and shade devices shall be durable.

B. Guidelines

1. Placement. Limit placement to over windows and doors, not walls in between.
2. Place awnings and other shading devices so as not to interfere with pedestrian signage for shops and businesses. Design awning heights on a building to be consistent along the facade or frontage line so as to maintain a consistent street edge.

3. Aim to provide continuous awnings or shade devices at southern and western exposures above storefronts and storefront cafes.
4. Mountings. Use mountings that respect and enhance moldings that may be found above storefronts or sign panels.
5. Materials & Colors. Use materials that complement other materials on the building. Use colors that complement building colors and design.

4.5.11 Balconies

A. Standards

1. Design. All balconies shall be accessible from inside the building and shall not be completely enclosed.
2. Minimum Depth. Balconies shall be no less than six feet in depth.
3. Decorative Railings. Decorative railings attached to the building facade that do not create occupiable balconies are permitted.

B. Guidelines

1. Location. Balconies are encouraged on projects facing major public spaces such as parks, playgrounds, and plazas. Balconies are permitted on internal courtyard spaces.
2. Recessed Balconies. Recessed balconies are acceptable.

4.5.12 Walls, Hedges, and Fences

Garden walls, retaining walls, hedges and fences may be used to define the edge between adjoining private properties. Walls, hedges, and fences facing the public street shall also comply with the frontage type standards (see Section 4.4).

A. Standards

1. Height. No fence, wall, or hedge shall exceed six feet in height. The top of a fence shall remain level in stepped conditions.

2. Location. Garden walls, retaining walls, hedges and fences shall be built at least 18 inches from the property line, to allow room for footings and planting.
3. At Storefronts. Walls and fences shall not be used at storefronts or *storefront cafés*, except that retaining walls are permitted in situations where they are necessary to accommodate grade changes.
4. Materials. Solid perimeter walls shall be constructed of high quality enduring construction materials such as masonry or ornamental metal. Retaining walls shall be masonry, stone, or finished concrete when they are visible from the street. Concrete block and interlocking concrete pavers (such as keystone) are not permitted.
5. Plastic and Vinyl. No plastic or vinyl fencing shall be permitted forward of the build-to line, unless the material is a recycled plastic lumber (RPL).

B. Guidelines

1. Design. In general, fences, walls, and hedges should complement the architecture of the building that they enclose and be compatible with the land use intensity. For example, residential uses should incorporate a softer texture of enclosure such as wood fences and landscaped hedges, whereas commercial buildings may use masonry or concrete walls.
2. Walls and fences should be architecturally enhanced and complemented by adjoining landscaping. Tiered planting should be provided adjacent to perimeter walls to soften their appearance from surrounding areas.

4.5.13 Architectural and On-Site Lighting

Architectural lighting should encourage a pedestrian-friendly environment and enhance both community safety and business exposure. The following standards and guidelines apply to private development.

A. Standards

1. Building Lighting. Lighting on buildings shall be oriented to pedestrians in terms of scale, design, and location.
2. Building lighting may include low-level exterior lights adjacent to buildings and along pathways for security and wayfinding purposes and low-level accent lighting to highlight architectural features and landscape elements.
3. Light Spill. All exterior lighting shall be shielded or directed toward the areas to be lit to limit spill-over onto off-site uses or the night sky.

4. Alley Lighting. Alleys shall have lights mounted on outbuildings or garages.

B. Guidelines

1. Design. Light quality should not be harsh, glaring, blinking, or shed beyond property boundaries.
2. Integrate lighting into the design of the site and buildings. The design, color and finish of light standards and fixtures should complement the architecture, color and materials on site.
3. Ensure that all building lighting fixtures, whether exposed or concealed, do not have exposed conduit runs, junction boxes or other unfinished elements.
4. Entries and Parking. Increase lighting at entries to buildings and parking areas and structures to improve wayfinding and security.
5. Lighting Levels. Avoid creation of bright spots or uneven lighting along the sidewalk edge. Ensure building lighting, both internal and external including lighting of architectural features, supports a pleasant, evenly distributed nighttime ambience.
6. Energy Efficiency. Lights should use LED and other technologies to maximize energy efficiency. Use minimum allowable foot candles (measurement of light intensity) for security and visibility to reduce unnecessary lighting of the night sky and residential dwellings. House-side shields and automatic controllers could be utilized to further reduce unnecessary lighting and energy consumption.
7. Green Spaces and Plazas. In green spaces and plazas, illuminate primary walking paths and focal points such as trellises,

water features or art installations to enhance evening use and safety. Low-level illumination sources are encouraged, including bollard, step and pathway fixtures.



Architectural Lighting (4.5.13)

Architectural lighting is restricted to the lower floors and light sources generally pointed downward.



Shielded Lighting (4.5.13)

This light at the exterior of a building is shielded to limit spill-over lighting.

4.5.14 Building Materials and Color

A. Standards

1. Building Materials. Building materials shall be high-quality and durable.

B. Guidelines

1. Materials. Use high quality craftsmanship and materials at the ground level, with ample use of texture, articulation and use of natural materials like brick, wood, and stone. Natural materials and tones are encouraged; metals should primarily be used as accents or roofing.
2. Colors. Light, natural tones are encouraged for expansive wall surfaces. Strong, bright colors should be used as accent colors.
3. Branding. Building colors that turn a building into an extension of a brand are strongly discouraged.

4.5.15 Sustainability

Passive sustainability practices are woven into this Plan through the standards and guidelines. In addition, new development is encouraged to be certified under Leadership in Energy and Environmental Design (LEED), Energy Star, or other recognized sustainability rating programs. The goal is to assure that all new development considers sustainable building practices and strives to minimally impact the natural environment.

A. Standards

1. All new development shall be designed with a commitment to sustainability at both the site and the building level.

4.5.16 Service and Utilities

A. Standards

1. Location. Service, utility, and mechanical functions, including retail loading, shall be located in alleys whenever present. When alleys are not present, service functions shall be placed behind buildings and provisions for access shall be made.
2. Screening. Service, utility, and mechanical equipment that is visible from the street shall be screened from view with landscaping or enclosures. Backflow and fire standpipes, along with utility box transformers shall be screened.
3. Screening Design. All screening devices shall be compatible with the architecture, materials and colors of adjacent buildings.
4. Trash Enclosures. Walls Required. Trash areas that are visible from public streets or other properties shall be enclosed by masonry walls. Entrances shall be enclosed by an opaque metal door.
5. Trash Enclosure Dimensions. Trash enclosure walls shall be six feet high.

B. Guidelines

1. Trash and storage enclosures should be architecturally compatible with the project design and incorporated into service

areas within buildings, wherever possible. Landscaping should be provided adjacent to the enclosure to screen them and deter graffiti.

2. Trash enclosures and retail loading areas should be sited to minimize nuisance to adjacent properties.
3. The location of trash enclosures should be easily accessible for trash collection and should not impede general site circulation patterns during loading operations.
4. Mechanical equipment should vent to an alley wherever possible.
5. Roof-vent penetrations and mechanical equipment should be located at least ten feet from any exterior building face.
6. Gutters and downspouts should be made of galvanized steel, copper (not copper coated), or aluminum.

4.6 PARKING AND LOADING DESIGN STANDARDS

The following parking and loading design standards shall apply to all parking provided in the Plan area.

Parking areas and landscaping, driveways, service access and facilities shall not qualify as green space.

4.6.1 Parking Location

1. Parking shall be located in parking garages or structures. Surface parking lots are not permitted except as temporary parking lots (see Section 4.6.5 below).
2. At blockfronts facing public streets, at-grade or above-ground parking shall be screened by a habitable space no less than 20 feet deep, except when utilizing the exposed garage building type (see Section 4.3.6). Subterranean parking may extend to the property line (see Section 4.5.8 G.).

4.6.2 Parking Access

1. Parking shall be accessed from a public or private alley when present. If no alley is present and parking access must be from the street, driveways shall not be located within 60 feet of an intersection, measured the distance perpendicular from the property line closest to the intersection. Driveways shall not be located at the terminus of a street.
2. In no case shall the total number of access driveways on a blockfront exceed the

number specified in the service and access point standards for the applicable block development standards (see Section 4.2).

3. Pedestrian entrances to all parking shall be directly from the street, except that underground parking garages may be entered directly from a building.

4.6.3 Parking Dimensions

1. Parking design shall conform to City of Westminster's off-street parking construction and maintenance standards, handicapped parking space standards, and bicycle parking standards (see W.M.C. 11-7-4 (C)-(E)).
2. Tandem parking spaces are permitted in attended parking facilities for commercial and retail and are permitted in unattended residential parking facilities.
3. Hydraulic lifts are permitted in attended parking facilities and key operated unattended lifts are permitted in unattended residential parking facilities.
4. Robotic parking is permitted subject to City approval.
5. Parking garages that primarily serve residential buildings may have multiple entries to take advantage of multiple site grades. The different garage levels need not be internally connected.

4.6.4 Parking Design

1. Bike parking, car-share parking, and other alternative ride vehicles shall be given priority placement within parking structures.

4.6.5 Temporary Parking Lots

1. Temporary parking lots are defined as parking lots that are in place for less than 24 months. Temporary parking lots shall be exempt from parking location and parking design and landscaping standards.
2. Temporary parking lots fronting Westminster Boulevard, Gray Street, Eaton Street, or Central Parkway shall provide a 20-foot deep landscape buffer at blockfronts facing any of these streets.
3. Temporary parking lots shall be paved.
4. Temporary parking lots need not comply with block development standards including minimum building frontage occupancy.

4.6.6 Driveways

1. The maximum width for a one-way driveway is 12 feet and for a two-way driveway is 22 feet.

4.6.7 Loading Areas

1. Service and loading areas shall be located away from public streets whenever possible. Entrances to loading areas shall be no more than 18 feet wide. Entrances fronting public streets shall be enclosed by an opaque gate covering the entire entrance. Such gates shall be of high-quality and durable materials that complement the architecture of the building.

4.6.8 Parking Required

1. The minimum number of vehicle parking spaces required shall be determined by the following table:

Table 4.6.1: Required Parking	Minimum Number of Parking Stalls Required
Office, commercial, business, and similar uses.	Three parking stalls per 1,000 SF
Residential	1.5 per dwelling unit

2. Reductions to required parking may be applicable for affordable and age-restricted residential uses, as per the W.M.C.

4.7 SIGN STANDARDS AND GUIDELINES

4.7.1 Intent Statement

Chapter 11: Sign Regulations of the Westminster Municipal Code regulates signs within the City of Westminster. The standards of this Section provide supplemental regulations and special allowances to ensure the successful design of signs in a pedestrian-oriented downtown environment.

The standards intent is to enhance the pedestrian experience in the new downtown, prevent visual clutter, and promote successful sign design that contributes to new downtown's economic health.

4.7.2 Relationship to the Westminster Municipal Code

All signs shall comply with the W.M.C. Title XI, Chapter 11: Sign Regulations except for signs permitted within the boundaries of the special sign districts as described below.

4.7.3 Special Sign District

This Plan recognizes that the urban environment envisioned for new downtown is unique with the context of Westminster. In order to accommodate signs that are not appropriate for Westminster as a whole, but may be appropriate for portions of the new downtown this Plan provides provisions for a special sign district.

The special sign district allows specific signage otherwise prohibited in the W.M.C. Title

XI, Chapter 11 and prohibits signs otherwise allowed. These special allowances, restrictions and supplemental regulations are defined below.

All provisions of the W.M.C. Title XI, Chapter 11 not specifically mentioned or differentiated in this section shall remain in effect.

A. Additional Permitted Signs in the Special Sign District

Within the boundaries of the special sign district the following signs shall be permitted:

- Projecting blade signs projecting no more than four feet from the building face.
- Awning signs printed on or mounted to building awnings. Awning signage shall be counted towards the total allowable signage area.
- Portable signs no more than 48 inches in height. These signs shall be not hand-held, have no permanent attachments and not be located in planter beds.
- Exposed neon wall signs. Neon signs must comply with the wall sign regulations detailed in Section 4.7.4.
- Pedestrian scale electronic signs for public purposes only. The maximum size of an electronic sign shall not exceed two feet by four feet. The intensity of illumination shall not exceed on-street pedestrian light levels.
- String lights used for public or commercial purposes.
- Back-lit awnings with low levels of illumination.

B. Prohibited Signs & Compliance

- Monument signs are not permitted within the Plan area boundary.
- Signs designed to be primarily viewed from the highway are prohibited (excluding wall signs).

Directional/informational sign controls will be developed as part of the Wayfinding Master Plan and are not subject to the restrictions detailed in W.M.C. 11 11-11-7(C).

4.7.4 Supplemental Regulations

The following additional regulations and allowances apply to signs within the Special Sign District.

A. Wall Signs

1. All signs must be comprised of individual channel letters with the exception of cabinet-style logos which are not to exceed nine square feet. Combinations of individual letters, cabinet logos, and taglines are permitted. The tagline must be secondary to the main sign. The height of the tagline may not exceed one quarter of the height of the individual letter sign.
2. Limitation in Number. One sign per street frontage not to exceed two frontages
3. Maximum Area. The greater of 30 square feet of two square feet of sign area for each lineal foot of building or tenant frontage, not to exceed 300 square feet in area. This criteria shall not apply to signs for individual tenants in buildings that are primarily multi-tenant office buildings.

4. Restrictions, Additions, Clarifications and Exceptions. Pendant fixtures may be used for direct illumination of signs. The following restrictions, additions, clarifications and exceptions as listed in the W.M.C. Title XI, Chapter 11 do not apply: 11-11-7-(B)(7) g,h,i,k,l

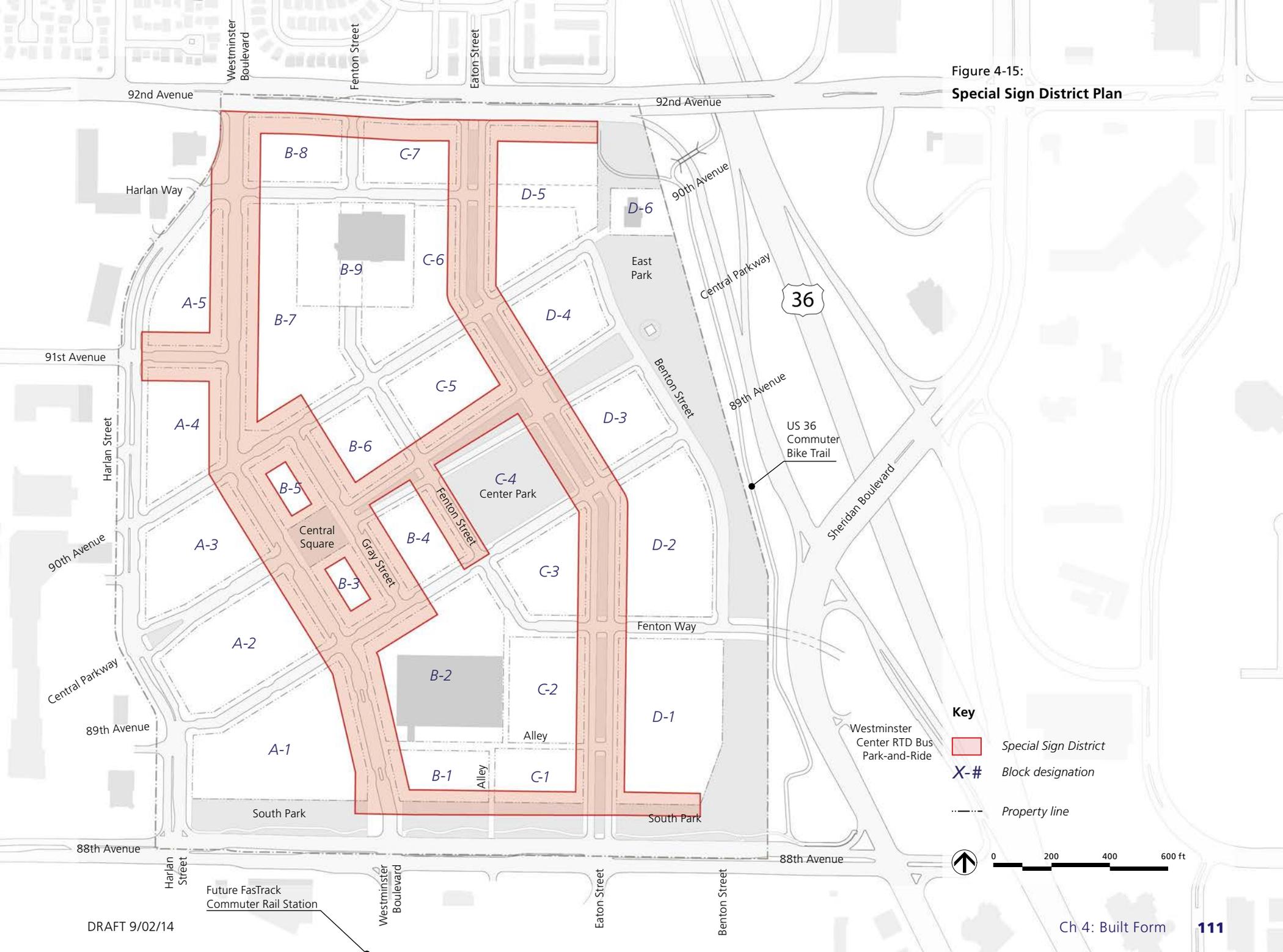
B. Second-Floor Tenants

1. Limitation in Number. One projecting blade sign is permitted for each second-floor tenant.
2. Restrictions, Additions, Clarifications and Exceptions. Blade signs located on the second-floor must project off the building at a 90-degree angle.

C. Residential Signage.

1. Limitation in Number. One non-illuminated identification sign located above the building entrance is permitted for residential complexes.
2. Maximum Area. Identification signs may not exceed 40 square feet in area.
3. Restrictions, Additions, Clarifications and Exceptions. The sign may not project above the roof line of the building to which the sign is attached.

Figure 4-15:
Special Sign District Plan



- Key**
- Special Sign District
 - X-# Block designation
 - Property line



4.7.5 Sign Guidelines

The following guidelines supplement the provisions of W.M.C. Chapter 11 and the Downtown Specific Plan Sign District, and relate specifically to the downtown area.

A. General

1. Signs should be of a character and scale that relates to the pedestrian.
2. Signs should be conceived as an integral part of the design so as not to appear as an afterthought application.
3. The location, size, and appearance of building identification signs should complement the building and overall character of the district.
4. Signs should be located and designed for maximum visibility and legibility.
5. Signs shall generally face the centerline of the street or the direction of pedestrian traffic.
6. Signs should exhibit quality and contribute to the character of the Specific Plan Area.
7. Illuminated Signs should limit glare upon adjacent properties, sensitive uses, and roadways.

B. Color and Material

1. Select colors that enhance sign legibility taking into consideration the color of the building wall or awning to which the sign is to be attached. Dark letters on light colored background and light colored letters on dark backgrounds work best.
2. Select sign colors that complement the colors of the building and related accoutrements. Sign colors and finishes should be compatible with the development as a whole.

C. Guidelines for Ground-Floor Tenants

1. Place signs in locations that complement the building's architectural design. The rhythm of storefronts and openings should be considered.
2. Reserve primary signing opportunities on a building, awning, and canopy for the identification of the business name, logo, or both.
3. Reserve secondary signing opportunities on a building and shop windows for identification of business products and services offered on the premise, when such identification is desired; make such service and product identification a smaller font than the primary business identification signing.
4. Add hours of operation and other operational information important to shoppers on entry door or near entry door, scaled for viewing by pedestrians, not motorists.

D. Illumination

1. Reduce the level of brightness of sign lighting on developments that include a residential component by limiting externally illumination to shielded or full-cutoff fixtures such as goose-neck fixtures and recessed under canopy lighting.
2. Place exterior sign lighting above the sign and in a manner that it does not obscure the text and graphics. Use only as many fixtures as are needed to adequately light the sign.
3. Direct exterior lights onto signs so as not to create off-site glare or hot spots.
4. Indirectly illuminated signs, which do not produce light from within, but are illuminated by spotlights, are preferred.

Self-illuminated signs that emit light from within themselves are discouraged.

E. Materials and Workmanship

1. Signs should convey professionalism and high-quality workmanship, and should be crafted by a professional.
2. Select high-quality, durable, and low maintenance materials such as aluminum, brass, copper, stainless steel, and finished wood. If wood is used, it should be properly sealed to keep moisture from soaking into the wood and causing the sign's lettering to deteriorate.
3. Use materials that complement the design of the building, the type of business being promoted and the building material on which they are placed.
4. Select materials, colors, graphic style, and lighting fixtures that contribute to sign legibility.

4.7.6 Illustrative Sign Images

The following images illustrate the sign guidelines of section 4.7.5



Shingle Sign

A shingle sign of high-quality materials is designed to complement the building design.



Building Sign

A building sign located near the top of a building.



Suspended Sign

A suspended sign in an entry alcove.



Window Graphics

Window graphics identify products and services without obscuring the window.



Wall Sign

A wall sign utilizes neon tubes. The tubes are shielded to contain light spill-over.



Awning Sign

A high-quality durable screen print on a storefront awning.



Wall Sign

A wall sign with individual channel letters.

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**GREEN SPACE &
PUBLIC ART**

5 |

5.1 OVERALL DESIGN INTENT

The Downtown Specific Plan recognizes that access to public green space significantly contributes to the quality of life in a city. This is particularly the case in urban development where individual access to private green space may be limited.

This plan sets aside 18.9 acres for public green space – that is approximately 18 percent of the overall Plan area. This is in addition to the public rights-of-way that are treated as an integral part of the public space network (see Chapter 3).

It is this Plan's goal to provide public green spaces that vary in size, character, and the activities they facilitate, and that are easily and conveniently accessible from all parts of the new downtown.

Policy Objectives

1. Provide a network of public spaces and parks that serves the needs of residents, workers and visitors to the downtown area.
2. Ensure that public spaces foster and encourage civic and social gatherings and a sense of ownership for all Westminster residents.
3. Employ the "Power of 10" principle in each public space, where each destination provides ten things to do – activities and smaller-scale experiences that establish the space as a must-visit, beloved destination.
4. Cluster activities together to create a busy, dynamic place for many different types of people at different times of the day.

5. Foster connectivity and interaction between surrounding uses and public spaces, allowing activities to spill onto plazas from adjacent uses.
6. Incorporate flexibility into the design of public spaces in order to maximize opportunities and uses, particularly in relation to seasonal changes.
7. Incorporate the themes of health and fitness, food and gardening, tech-oriented amenities and activities, dynamic, interactive art, community celebrations and gatherings and spontaneity.
8. Incorporate public art as an integral part of the public realm experience throughout the downtown.

5.2 PUBLIC GREEN SPACES

While the final design and programming of the downtown's public green spaces will occur in future planning phases, this Plan provides basic conceptual cornerstones for the envisioned spaces. These cornerstones focus primarily on each space's spatial relationship with the Plan as a whole, basic features, edges, transitions, and connections between other public and green spaces as well as integration of proposed bike and pedestrian trails. Additional detail about park and public space programming is addressed in the Project for Public Spaces Report in the Appendix.

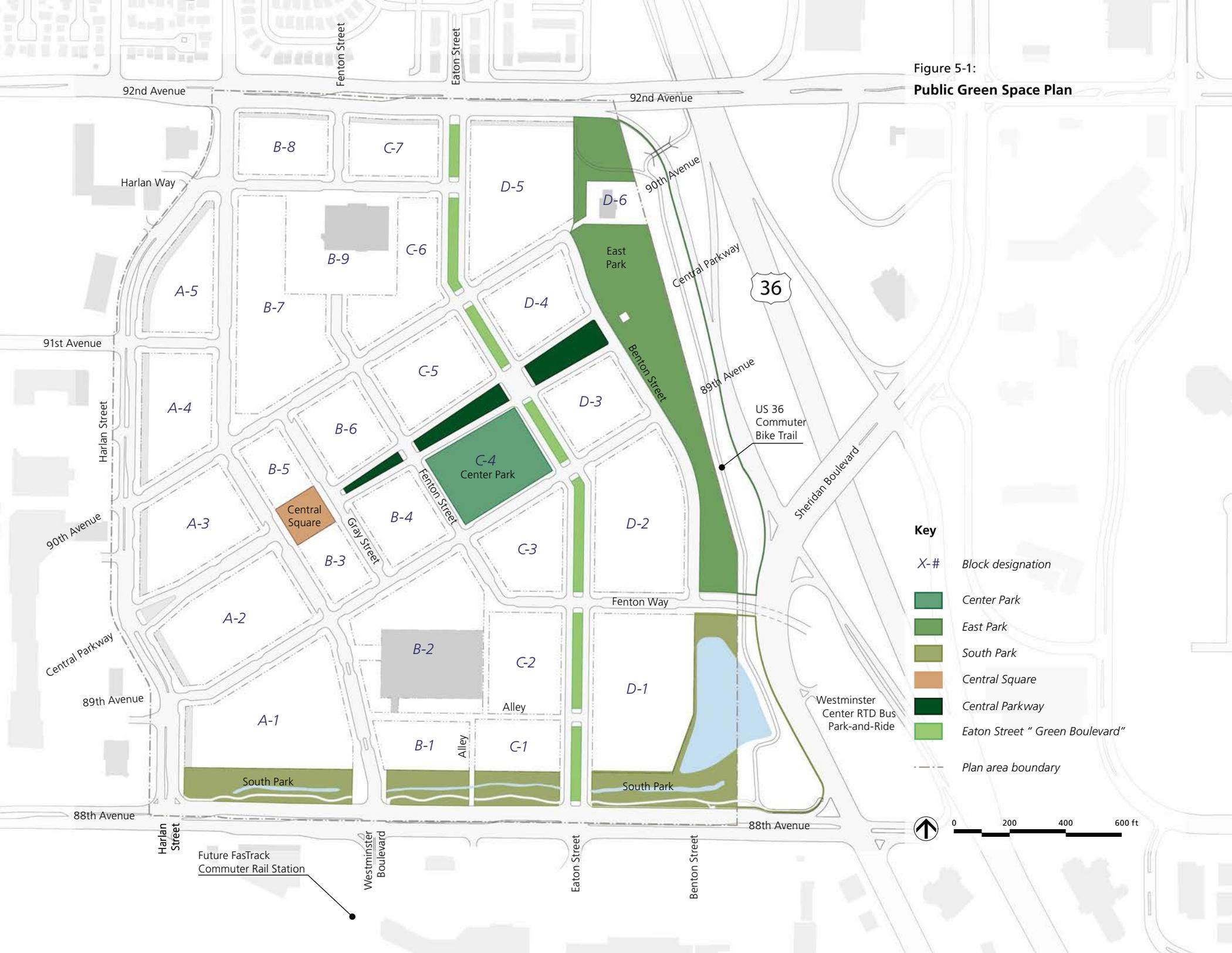
The green space network shown in Figure 5-1 includes two urban squares or plazas, a linear median park on Eaton Street, and a median park connecting east to west. Additionally, two linear parks shape the edges of the Plan area, and a well-sized neighborhood park, Center Park, sits near the center of the Plan area.



Eaton Street Green Boulevard

Artist's rendering of the green boulevard, a linear green space spanning from 88th Avenue to 92nd Avenue.

Figure 5-1:
Public Green Space Plan



Key

- X-# Block designation
- Center Park
- East Park
- South Park
- Central Square
- Central Parkway
- Eaton Street "Green Boulevard"
- Plan area boundary



5.2.1 Center Park

A. Intent Statement

Center Park is located at the heart of the Plan area. Given its location, this park provides the opportunity to create a shared destination between various uses and developments all around the park edges. At over 2.2 acres (2.6 acres including the park-adjointing sidewalks) Center Park is the largest contiguous park within the Plan area and provides space for a broad range of activities.

Along its northwestern edge, Central Parkway passes by Center Park. At the northwestern edge the Eaton Street “green boulevard” passes by. Crosswalks should connect these parks at intersections and mid-block. Additionally opportunities to design these median parks as potential programmatic and design extensions of Center Park should be explored.

B. Green Space Opportunities

Given its size and location, Center Park should become the major community gathering place in downtown. Potential uses in Center Park should include a variety of formal and informal elements to accommodate a variety of activities and attract a wide variety of users. Potential program elements are identified in Figure 5-2.

While four streets shape the park’s edges, the special experience of the green space should be thought of as spanning to the faces of the buildings on the far sides of the streets. Lining these park edges with a mix of active uses and frontages will help to define both its edge and its function as a place for the general public and not just a residential park.

A café, a book kiosk, bike rental, or similar uses can help activate the park and comple-

ment green space programming. A limited amount of commercial uses may be permitted with City approval.

C. Green Space Edges

Center Park is bounded by streets on all sides.

1. Eaton Street. A green street with narrow roadways provides for easy crossings to the median park with opportunities for synergies between the two green spaces.
2. Central Parkway. This street connects to East Park and Central Square. High volumes of pedestrians and bicyclists are anticipated here. Visibility, common materials, and accentuated pedestrian crossings into Center Park would visually and physically connect the two spaces.
3. Fenton Street and 89th Avenue. Two local streets make up the remaining park edges. A mix of commercial and residential uses will frame the park space to the southwest and southeast.



Community Connections

Paths link through the park space.



Destination for Families

Center Park is a destination for residents and visitors alike.



Informal Lawn Spaces

Lawn spaces allow for informal activities



Park Edge

A fluid park edge draws the sidewalk into the green space.



Band shell

An opportunity for a venue for community events.

Figure 5-2:
Center Park Conceptual Diagram

**This Plan is for Illustrative
Purposes Only**
Actual Park Design May Vary

Breaks in the street tree placement provide a "window" into the green space

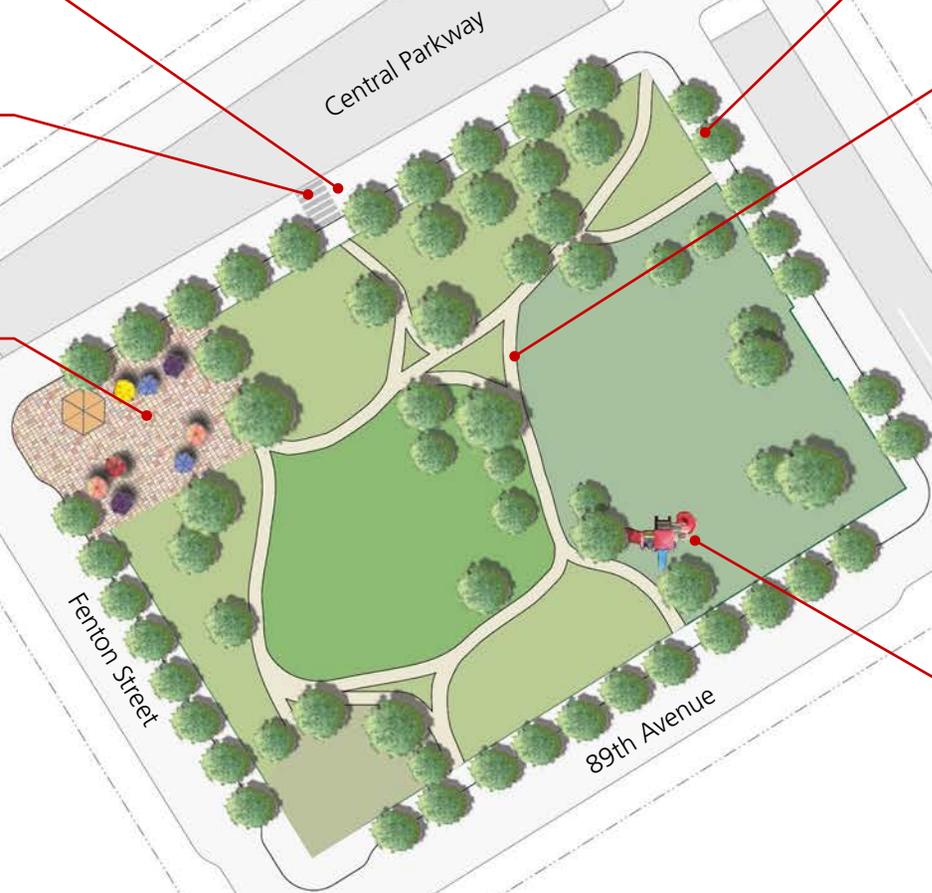
Mid-block connections to the median park

Hardscaped areas provide opportunities for additional activities

The sidewalk design should be incorporated into the park design

Paths and trails create distinct zones that can accommodate multiple programmed activities

Children's play areas and other amenities make a family-friendly park



5.2.2 East Park

A. Intent Statement

East Park lies between Benton Street and US 36. While the park proper reaches the Plan area's eastern boundary, there is the opportunity to extend the green space into CDOT's right-of-way up to the commuter bike trail. The US 36 bike trail connects Boulder with Denver. It will run the length of East Park beginning at the 92nd Avenue bridge underpass and across Fenton Street where it will continue southward.

Generally linear in shape, East Park lends itself to walking, running, and biking. Wider portions of the park could accommodate additional programming as well as plantings and changes in topography. However, the presence of existing underground utilities may limit landscape design in some areas.

To the north, the park terminates at 92nd Avenue, the Plan area's high point. A gradual landscaped transition to this high point provides interesting topography and a vista point overlooking the downtown with the Front Range forming the backdrop.

B. Green Space Opportunities

Programming for this park is constrained by grade transitions, existing underground utilities beneath the park that will remain, and a freeway edge. The primary opportunity for this park space is to capitalize on the site's topography and create a functional park for a variety of activities that also serve as a physical and visual buffer between the freeway and new development. Potential program elements are identified in Figure 5-3.

C. Green Space Edges

1. Benton Street. The Benton Street design in conjunction with the park provides an opportunity for a green stormwater management measure. Street runoff can flow across the roadway and into the park where it will drain into a bio-swale. The bio-swale along the park edge will allow the runoff to filter and then infiltrate into the ground and replenish the aquifer.
2. 92nd Street. The topography gradually rises to meet the high point. The resulting hill provides access into the park and an overlook over the entire site.
3. Fenton Street. At the southern edge of East Park Fenton Street passes under Sheridan Boulevard to provide access to the Westminster Center Park-and-Ride. A pedestrian and bike crossing then connects this park to South Park. Together, these two parks are the primary green spaces that make up the pedestrian trail loop that circumvents the new downtown.



Visible Topography

Green spaces with topography are visually interesting. In this example, the green rises above adjacent buildings.



Elevation Transition

The green space gently slopes up to meet West 92nd Avenue.



Walking and Biking Trails

Walking trails augment the US 36 bike trail that runs from Boulder to Denver.



Park Benches

Benches along sidewalks encourage social interaction.

Figure 5-3:
East Park Conceptual Diagram

**This Plan is for Illustrative
Purposes Only**
Actual Park Design May Vary

Park access from 92nd Avenue

Elevated position provides views of the Front Range, downtown, and Denver's skyline

Existing medical office

Opportunity for landmark visible from downtown and the US 36

US 36 bike trail located in the CDOT right-of-way

Connections to neighborhood destinations

Steeper slopes south of 89th Avenue

Plan area boundary

Enhanced crossing to Central Parkway median

Central Parkway

90th Avenue

Eaton Street

Central Parkway

89th Avenue

Benton Street



0 125 250 375 ft

5.2.3 South Park

A. Intent Statement

The Allen Ditch is a historic irrigation ditch that has shaped much of the agricultural development in Westminster. The ditch runs the length of South Park and was constructed in 1884 by William Allen, a Canadian immigrant to the United States. Originating at Clear Creek, the Allen Ditch brings water to farms and crop fields in the high countryside.

Lined with tall mature cottonwood trees and grasses on either side, the Allen Ditch has long defined a green edge along 88th Avenue. This Plan intends to preserve this green edge, create a usable green space by increasing its size in some areas, and make it accessible from the adjoining development parcels. Near the intersection of 88th Avenue and Sheridan Boulevard, the existing stormwater detention pond will be expanded and relocated to the west. The pond expansion could provide an opportunity to design an amenity that will be a visual attraction in this park. Westminster Boulevard, Eaton Street, and an alley cross this green space. At each crossing, access into the downtown is paired with access to and views of the park.

B. Green Space Opportunities

In many ways South Park is already established as a green space. Towards the west, the park can be expanded and covered sections of the Allen Ditch can be daylighted and exposed all the way to Harlan Street. At the eastern edge, near Sheridan Boulevard, the park is expanded and a new stormwater detention pond will create the opportunity for an amenity area. Terraces, outdoor dining, and a pedestrian promenade could line the northern edge of this park.

Potential programmatic elements are highlighted in Figure 5-4.

C. Green Space Edges

1. 88th Avenue. The existing eight-foot sidewalk spans the site east to west and serves as a pedestrian trail. This configuration should be preserved.
2. Northern Park Edge. Along the northern edges of the park a new pedestrian promenade will provide views of and access to the park. Here, the streetscape design standards allow for outdoor dining terraces that would overlook the park (see Section 3.2.11).
3. Existing Trees. Plant new and replace older, less healthy Cottonwood trees in order to maintain a robust tree canopy along the ditch.



Allen Ditch

Majestic cottonwood trees line the historic Allen Ditch irrigation channel.

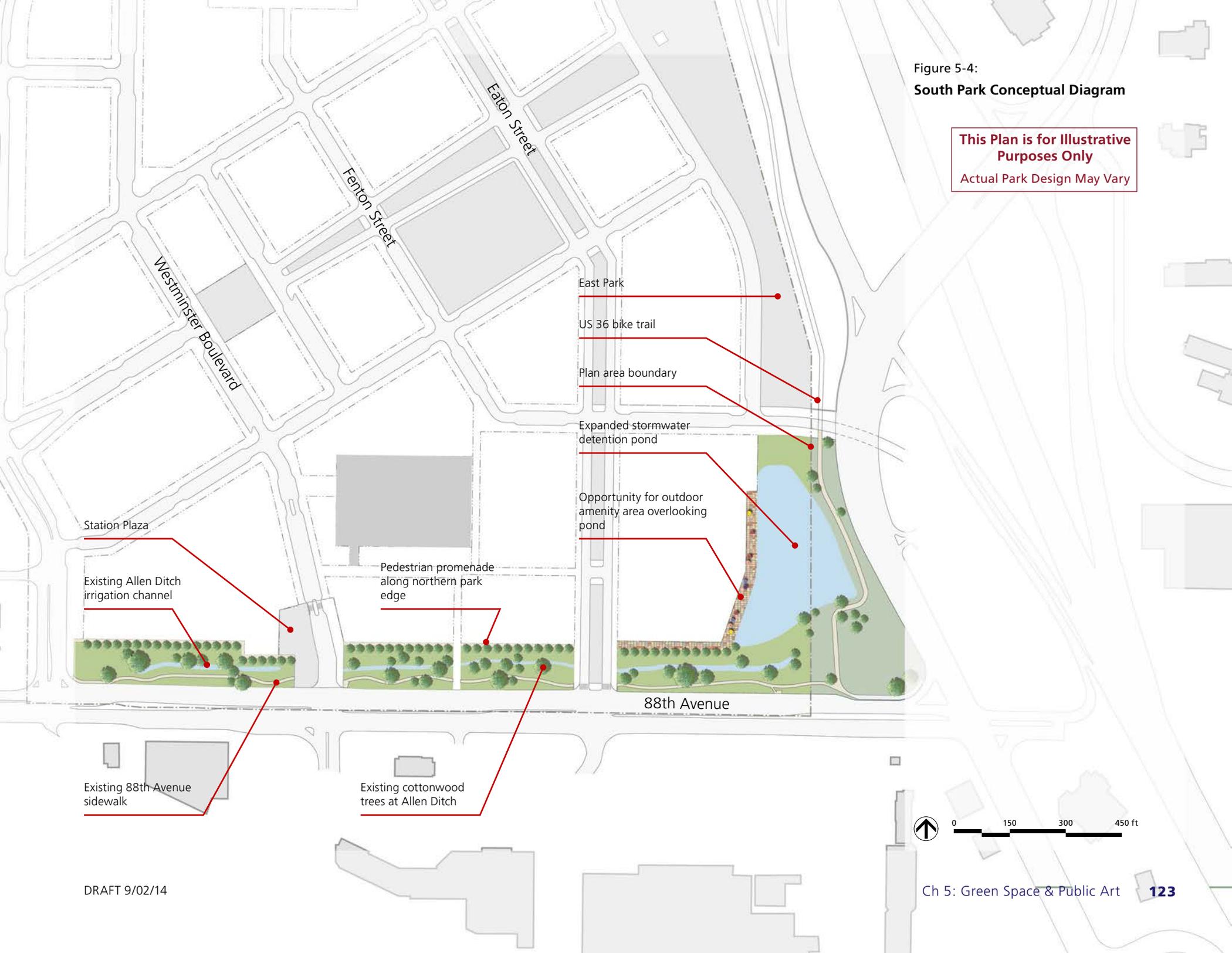


Walking and Biking Trails

South Park's linear geometry lends itself to walking and biking trails.

Figure 5-4:
South Park Conceptual Diagram

**This Plan is for Illustrative
Purposes Only**
Actual Park Design May Vary



5.2.4 Central Square

A. Intent Statement

Central Square is a central gathering and activity space in the heart of downtown. It serves residents, locals, and visitors alike and is located at the center of activity in the retail core. The square is framed by buildings on all sides with ground-floor retail uses lining its edges.

Development directly abuts the square to the north and south, while Westminster Boulevard and Gray Street from the east and west edges of the plaza. To the southwest, the square has views of the Front Range and Mt. Evans in the distance. To the northeast, Central Parkway slopes up towards East Park where a landmark is located in the view axis.

In conjunction with special events, temporary street closures can increase the size of the square (see Section 3.4.3).

B. Green Space Opportunities

Central Square is conveniently accessible from all directions and should be programmed with active events that draw the local community as well as visitors. Ground-floor retail uses should be encouraged to spill into the square to provide activity and interest at different times of the day.

Potential programmatic elements are highlighted in Figure 5-5.

C. Green Space Edges

1. Northern and Southern Building Edges. Buildings about the northern and southern edges of the square. Here ground-floor retail, restaurant, and café uses should be encouraged to activate the space's edges.

2. Westminster Boulevard. Westminster Boulevard is the primary thoroughfare passing Central Square. The square's design should allow passersby to see activity on the square. Westminster Boulevard's landscaping and identity design should be continued along the plaza edge.
3. Gray Street. As one of downtown's primary retail streets, it should be anticipated that large numbers of pedestrians will cross from Gray Street sidewalks to the square. Enhanced crosswalks should provide safe crossings at intersections.



Central Gathering Space

A public green space at the center of the downtown.



Seasonal Activities

An ice rink is set up in the winter.



Covered Pavilion

A glass-covered pavilion can increase the square's usefulness in different seasons.

Figure 5-5:
Central Square Conceptual Diagram

**This Plan is for Illustrative
Purposes Only**
Actual Park Design May Vary



Enhanced crosswalk paving

Central Parkway

Tree placement preserves views up and down Central Parkway

Enhanced crosswalk paving

Enhanced street paving on Gray Street

Opportunities for outdoor dining

Central Parkway

90th Avenue

Gray Street

Westminster Boulevard

89th Avenue



5.2.5 Central Parkway

A. Intent Statement

The Central Parkway green space is a sequence of park medians at the center of Central Parkway. It connects from East Park to the Central Square and creates a view corridor from US 36 into the site. At the northeastern edge the park is 100 feet wide and it narrows significantly, down to 20 feet, at the southwest.

The park design will need to respond to the challenges of the varying widths – wider segments will allow for programmed spaces and activities while narrower segments may provide a tree-lined walk.

B. Green Space Opportunity

Central Parkway connects three areas that are anticipated to be major destinations in the new downtown: the US 36 bike trail, Center Park, and the Central Square. From one end to the other, it is less than a quarter of a mile, or a five-minute walk.

The site topography generally slopes down in a southwestern direction. A tall and visible landmark located in East Park will visually anchor the park on one end. The Front Range and Mt. Evans will be visible to the southwest.

Potential programmatic elements are highlighted in Figure 5-6.

C. Green Space Edges

The green space runs down the center of Central Parkway. Given that this street has one travel lane and a bike lane on each side, connections to and from the park will be easily accommodated. Nonetheless, pedes-

trian crossings should be designed with care to allow pedestrians to safely cross from one park segment to the next. The median segment adjacent to Center Park is significantly longer than the other two segments. Here, a mid-block crossing will reduce the length between crosswalks and provide a safe crossing location between the two green spaces.



Pedestrian Connection

A pedestrian path connects East Park to the retail core.

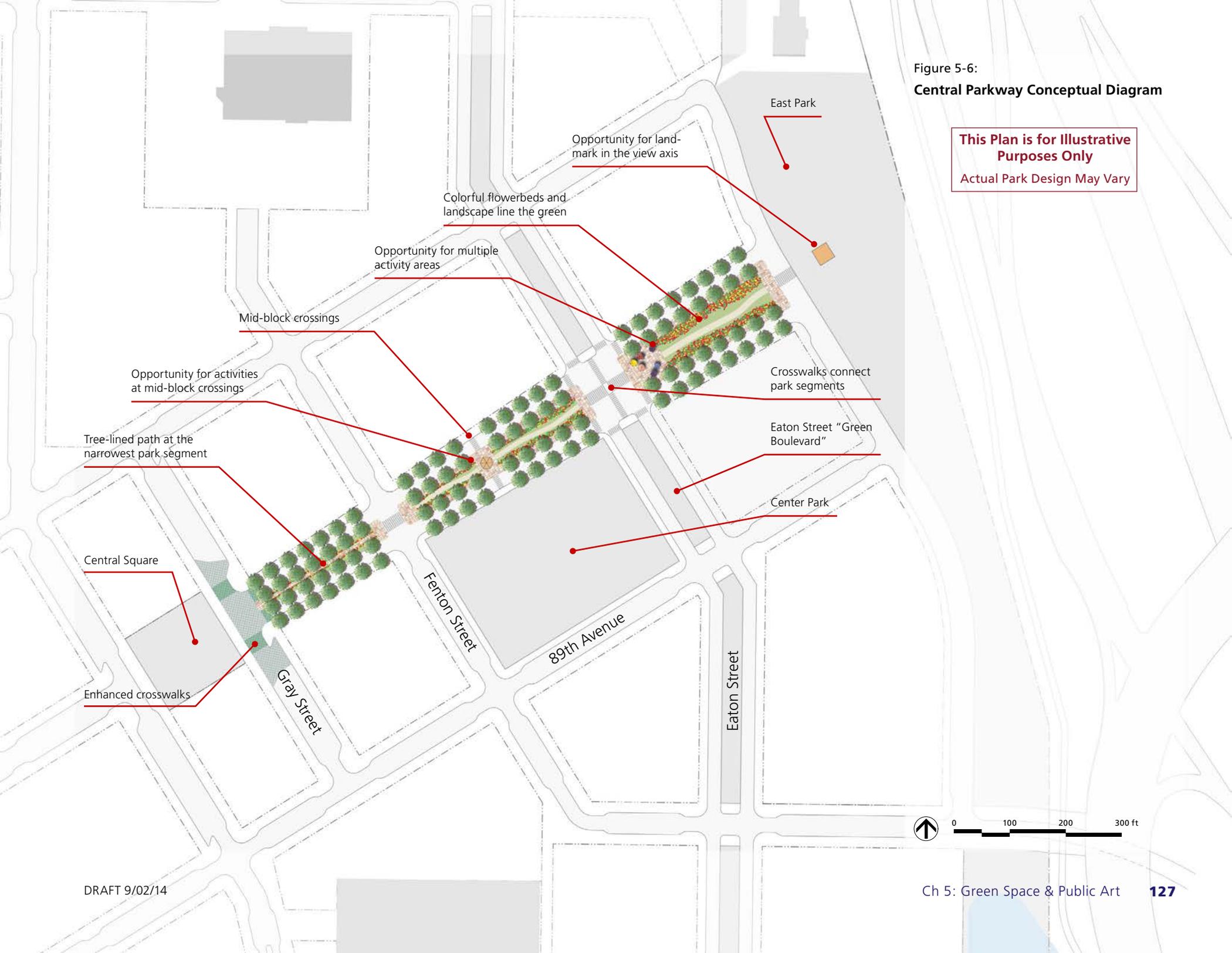


Activity Areas

The wider median portions accommodate activity areas.

Figure 5-6:
Central Parkway Conceptual Diagram

**This Plan is for Illustrative
Purposes Only**
Actual Park Design May Vary



5.2.6 Eaton Street Green Median

A. Intent Statement

The Eaton Street green median is a linear green space that spans the entire Plan area. As Eaton Street passes through the site, its median serves as a green connection between different parts of downtown. The median allows pedestrians to traverse the site from north to south. The design of the green median will vary between segments. Common to all segments is the formal arrangement of trees along the edges of the median and the adjacent sidewalks.

The median will need to accommodate turn lanes where Eaton Street intersects 88th and 92nd Avenues. Here the median segments will reduce in width.

B. Green Space Opportunities

The Eaton Street green median provides a linear green space in the middle of a decidedly green street. The design should respond to the anticipated levels of activity within each segment of the median. Three prototypical designs include: 1. a formal promenade with a wide paved area for strolling, people-watching, and market booths; 2. a walking path between lawn areas that allow for sitting, strolling, and similar casual areas; and 3. landscaped segments with intimate spaces and paths that allow the enjoyment and observation of a variety of plantings. These prototypical designs should be refined in future design phases.

C. Green Space Edges

This green space is flanked by roadway on all sides and roadways dissect it at intersections.

The green space design should accommodate safe pedestrian crossings into and out of the park. At park edges where there are no crosswalks the design should discourage crossings. Crosswalks should directly connect one park segment to the next wherever possible. Raised tables could further enhance connectivity along the park median at crosswalks.

Eaton Street's roadway accommodates bike lanes on both sides. Hence, the median green space areas should be exclusively for pedestrians.



Type 1 - Formal Promenade

Urban green spaces for strolling, meeting, and occasional booths.



Cafe Pavilion at Intersection

In particular at intersections, the median can serve as a social meeting point for residents.



Type 2 - Greens and Paths

Paths connect informal lawn areas.



Type 2 - Informal Activities

Even small spaces allow for a range of informal and social activities.



Type 3 - Intimate Spaces

Paths weave through landscaped planters and create intimate sitting areas.

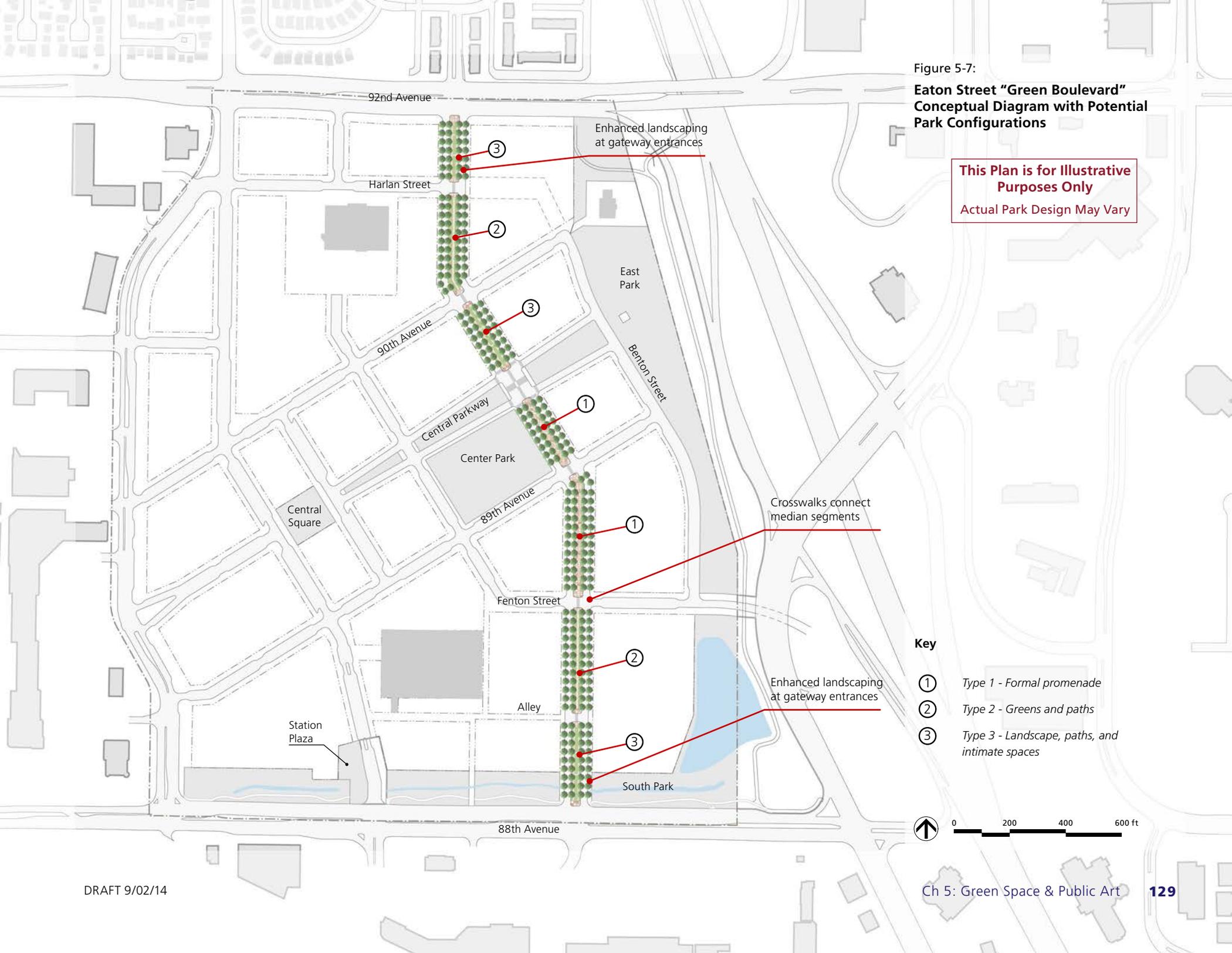


Type 3 - Landscape

Landscape and flowers can be enjoyed from the median itself or from across the street.

Figure 5-7:
Eaton Street "Green Boulevard"
Conceptual Diagram with Potential
Park Configurations

This Plan is for Illustrative
Purposes Only
Actual Park Design May Vary



- Key**
- ① *Type 1 - Formal promenade*
 - ② *Type 2 - Greens and paths*
 - ③ *Type 3 - Landscape, paths, and intimate spaces*



5.3 PUBLIC ART

Public art will be an integral component in the design of the public realm in the downtown. The City has already established a robust public art program. More than one hundred pieces of art have been installed in public locations throughout the city. The development in the new downtown, with its extensive network of public open spaces, provides a unique opportunity to continue this successful program and to establish the downtown as a cultural and public art hub.

The downtown public art strategy may include one or several approaches: the City may work with local and regional cultural and arts institutions to locate new facilities or satellite locations in downtown. Also, individual pieces of art that stand on their own can be located at appropriate locations and contribute to the downtown's identity.

However, public art in the Plan area should not be limited to one theme or a particular formal language. Rather, it should be varied such as by having various physical forms or appearances, vary in the degree of interactivity, or vary in how it is placed in the public realm. Public art could be overtly placed or embedded into the everyday function of the city (e.g. bike racks or paving). Other pieces could be placed as surprising destinations that need to be found.

Finally, public art in the downtown should allow for change, whether that is by making certain pieces temporary installations or allowing for art that can evolve over time.



Interactive Public Art

Public art invites play in a public open space.



Temporary Public Art

A temporary installation engages the streetscape, crosswalks, and even the adjacent buildings.

6 IMPLEMENTATION



6.1 PLAN IMPLEMENTATION

The Westminster Downtown Specific Plan is intended to guide and regulate development within the Specific Plan Area. The Plan anticipates new development in the area facilitated by a significant investment in infrastructure and public amenities. This chapter provides the framework for implementation, including a detailed implementation program.

6.2 RELATIONSHIP TO OTHER PLANS

Comprehensive Plan

The Downtown Specific Plan is consistent with the goals and policies of the Comprehensive Plan, including those specifically addressing the Westminster Downtown Focus Area. The Focus Area goals for the site include:

- F-G-1 Establish the Downtown Westminster Focus Area as the City's new downtown.
- F-G-2 Create a vibrant destination that serves as a cultural center for the community and as a regional hub and destination.

The Comprehensive Plan will be amended to reference the Downtown Specific Plan as the regulatory document for all properties located within this Plan's boundaries. The Comprehensive Plan will designate the Downtown Specific Plan area with the Focus Area land use designation. Updates to other sections in the Comprehensive Plan will include changes or additions to implementing policies and maps for Land Use, Multi-modal Circulation and Parks, Open Space and Recreation.

Municipal Code

The Westminster Municipal Code (W.M.C.) prescribes standards, rules and procedures for all development within the city. The Downtown Specific Plan sets forth land use and development regulations for the Downtown Westminster area and will be incorporated by reference in the W.M.C. Where there is conflict with the W.M.C., the Specific Plan shall prevail. Where the Specific Plan is silent, the W.M.C. shall apply.

Westminster Center Urban Renewal Plan

The Westminster Center Urban Renewal Plan (WCURP) envisions the Plan area as a "new transit-oriented mixed-use neighborhood including residential, retail, entertainment and employment uses, all adjacent to a new multi-modal transit station." This Specific Plan carries out the vision of the WCURP and is consistent with its objectives and implementation policies. No amendment to the WCURP is necessary.

6.3 DEVELOPMENT PROCESS

This section outlines the development review and approval process for all development within the Downtown Specific Plan District. All general improvements to a site within the Downtown Specific Plan District will require submittal of an Official Development Plan (ODP) for review. The development review process for projects proposed within the Downtown Specific Plan District is streamlined based on required consistency with the policies, standards and guidelines established by the Plan. Conformance with the Specific

Plan and related utility and infrastructure plans in the Appendix ensures that the proposed project concept is consistent with the vision and intent of the Plan. As such, the development review process allows applicants to begin at the technical level of review.

Review Process

The review process for projects within the Downtown Specific Plan District shall be consistent with W.M.C. 11-5-10 with the exception of submittal of a concept plan for review. An Official Development Plan (ODP) and Development Application shall be submitted for all proposed projects. The format and required elements of the ODP submittal are provided in the ODP Checklist for Specific Plan Districts, a copy of which is available in the Planning Division office or online through the Planning Division website. The ODP shall include phasing and associated timeliness if applicable.

Approval Process

Approval of a project is contingent upon the proposed project meeting the standards of approval of an ODP as described in W.M.C. 11-5-16. The plan must also demonstrate conformance with the standards and requirements set forth in this Plan.

Variations

Property owners may apply for a variance from the standards and requirements set forth in this Plan of up to 10 percent of the standard. The Planning Manager may approve the variance subject to finding that the intent of the standard or requirement in question is met and surrounding development and the public realm are not negatively impacted.

For variances that exceed 10 percent of any standard or requirement in this Plan, refer to W.M.C. 2-2-8.

Impact Fees and Recovery Costs

Fees for development within the City apply to projects within the Downtown Specific Plan District. These fees include:

- Public Art
- Public Land Dedication
- Park Development Fee
- School Land Dedication
- Water and Sewer Tap Fees
- Potable Irrigation

Impact fees specific to each development project will be calculated as part of the ODP process and project approval. Likewise, recovery costs for infrastructure may also apply, and will be addressed through the ODP process.

6.4 IMPLEMENTATION MEASURES

The implementation program presented in this chapter provides information about the infrastructure needed for the development of the downtown area.

Infrastructure Improvements

The infrastructure required for the development of the Downtown area includes streets, utilities, parks and public spaces, and shared public parking facilities for non-residential development. The Specific Plan is designed to allow infrastructure to be built incrementally over time as the area develops. Certain major streets, park facilities and utility mains that serve the entire planning area will be constructed by the City and repaid through assessments or taxes over time.

Streets

The Downtown Specific Plan introduces a new street grid over the 105-acre site. With most of the former mall structure and parking lots demolished, all of the internal streets within the Plan boundaries will be reconstructed. Several key streets will be constructed by the City in order to establish the framework of the street grid and facilitate the first phases of development on the site. These streets include Westminster Boulevard, Eaton Street, 89th Avenue, 90th Avenue, 91st Avenue and a portion of Fenton Street that will connect via underpass to the Westminster Center RTD Bus Park-and-Ride. The remainder of the street grid, including sidewalks and landscaping within the site will be constructed as development occurs. It is assumed that these elements will be constructed as part of private development projects and be main-

tained as City rights-of-way.

Street improvements are also anticipated for all of the streets bordering the Plan area. The Sheridan Boulevard bridge and street are currently under construction to accommodate three travel lanes in each direction. To the west, the Harlan Street alignment will be modified at the northwest portion of the site to accommodate Westminster Boulevard improvements. Additional improvements to the street will occur over time as funds are available as part of the City's Capital Improvements Program (CIP). These include intersection improvements at 88th Avenue, bike lanes along the length of the street, on-street parking, and reduction of lanes from four to two with a shared turn lane/landscaped median.

Defining the northern and southern boundaries of the Plan Area, 88th Avenue and 92nd Avenue will be analyzed for potential road diets. The intent of these road diets will be to facilitate safer pedestrian and bicycle access into Downtown across these streets, and in the future to and from the planned RTD commuter rail station just south of 88th Avenue. Improvements to these streets will be identified as part of the City's Transportation Master Plan and CIP.

Water and Sanitary Sewer

The projected demand for water and sanitary sewer use surpass the site's existing infrastructure capacity. Several major citywide improvements are planned or underway as of 2014 that will expand and improve infrastructure capacity for the Plan area as well as a much larger area of the City to the north and south of the site. These improvements are planned for completion by 2017. Within the site, water and sanitary sewer lines will be constructed in concert with new

street construction, including the initial street framework to be constructed by the City. Additional water sanitary sewer lines will be constructed in concert with new streets. Main line stub-outs from the initial utility infrastructure will be installed at planned street and alley connections. It is anticipated that utilities along these streets will be the responsibility of private development projects with a recovery or other financial mechanism for sharing the cost of line extensions under streets that will serve multiple properties.

Storm Water Retention

Storm water retention and detention requirements for the Plan area are based on a 100-year storm event. The site is currently served by an existing retention pond at the southeast portion of the site at the corner of Sheridan Boulevard and 88th Avenue. This retention pond will be expanded and relocated slightly west and north to serve development on the eastern half of the site. Retention for the development areas for the west half of the site will be served by the existing retention pond located to the south of the Lowe's Shopping Center south of 88th Avenue.

Electric, Gas and Telecommunications Utilities

Existing electric and gas lines that serve the site will need to be relocated within the planned street rights-of-way. As streets are constructed, these utilities will be added concurrently. The City will be responsible for a portion of these utilities as part of initial street construction in downtown, and will coordinate with Xcel Energy and private developers to lay utilities and locate transformers on the remainder of the street network. Cable and fiber optic lines will be installed by private providers.

Parks and Plazas

Over 18 acres of parks and plazas are proposed within the Specific Plan Area, which will result in approximately 3.0 to 3.6 acres of park space per 1,000 residents. Green space within the Plan area is comprised of linear parks on the eastern and southern edges of the site, a central park at Eaton Street and 89th Avenue, two linear park medians along Eaton Street and Central Parkway, and a central Plaza off of Westminster Boulevard. An additional two acres of park space is anticipated within the Plan area, the location for which will be identified as part of future development.

All of the parks and green space within the Plan area will serve as public space and will be programmed to serve a wide range of activities and users. Design, development and management of these spaces will be City-led, with the expectation that all developments in the Plan area will pay a fair share financial contribution towards park construction and management. Additional development impact fees for public land dedication will apply to projects with residential uses.

Management and Maintenance of the Public Realm

One or more maintenance districts may be established to manage, fund, maintain and program public facilities within downtown. Well-maintained, high quality and actively programmed public facilities are essential elements of a vibrant, attractive downtown. As such, the maintenance district(s) will comprise all public streets, plazas, parks and other public infrastructure in downtown.

Public Art

Public art is an important aspect of the identity and character of Westminster’s new downtown. As part of the City’s public art program, all commercial and multi-family residential development projects are required to contribute to the program. In the Plan area, all development projects shall contribute \$2,000 per 1.0 acre to the public art program. The City will develop a plan for public art within the Downtown area, which may include working with other local and Denver Metro arts districts and programs to expand and highlight public art in Downtown.

Parking Program

The Downtown Specific Plan District will establish a Parking District to serve all non-residential uses within the Plan area. The intent of the Parking Program is to maximize efficiency of parking within the Plan area. The Parking District will be comprised of on-street parking and off-street shared-use parking structures.

All development in the Plan area will be required to meet the prescribed parking ratios within the Specific Plan District. Non-residential parking demand can be met fully on-site, fully off-site within the Parking District, or a combination of on-site and Parking District spaces. If the Parking District is utilized to meet non-residential parking spaces for a project, spaces shall be purchased at the time of development approval by a fee-in-lieu per space.

The Parking District shall be holistically managed and monitored to ensure that parking demand and supply are in balance, new parking spaces are added as necessary to meet demand, and parking facilities are safe,

well-maintained, and easy to access and find throughout the Parking District.

6.5 IMPLEMENTATION PROGRAM

Implementation of the vision for a new downtown will be achieved through regulatory actions and infrastructure improvements. Table 6.5-1 outlines the expected actions and improvements necessary to achieve build-out of downtown. These actions will occur incrementally, with expected timeliness noted in the table, and will be coordinated by the City or other public agencies. Specific infrastructure improvements will be implemented in concert and negotiation with private development as it occurs.

Table 6.5.1: Implementation Program				
	<i>Improvement or Plan Component</i>	<i>Action</i>	<i>Coordinating City Department or Public Agency</i>	<i>Anticipated Timeframe</i>
Planning and Zoning Regulations				
PHASE I	Comprehensive Plan	Amend to reference the Westminster Downtown Specific Plan, including maps and text	Planning	Early 2015
	Westminster Municipal Code	Amend to reference the Westminster Downtown Specific Plan	Planning	
	Property Rezoning	Re-zone properties to Westminster Downtown Specific Plan District	Planning	
Site Preparation				
PHASE I	Site overlot grading and site preparation	Complete demolition of existing site improvements; grading; site preparation	Engineering	Early 2015
Street and Traffic Improvements				
PHASE I	Westminster Boulevard	Construct Westminster Boulevard from 88th Avenue to 92nd Avenue, curb to curb with temporary gravel trail	Engineering	2015
	Eaton Street	Construct Eaton Street from 88th Avenue to 92nd Avenue, curb to curb incl. median	Engineering	
	89th Avenue	Construct 89th Avenue from Westminster Boulevard to Eaton Street	Engineering	
	90th Avenue	Construct 90th Avenue from Harlan Street to Eaton Street	Engineering	
	91st Avenue	Construct 91st Avenue from Harlan Street to Westminster Boulevard	Engineering	
	Fenton Street (partial)	Construct Fenton Street from Eaton Street to Sheridan Boulevard underpass	Engineering	
	Sheridan Boulevard Underpass	Construct Sheridan Boulevard underpass connecting the Plan area with the Westminster Center Park-and-Ride	Engineering	2017
	Remaining Street Improvements	Construct remaining rights-of-way as shown on Figure 2-1, including sidewalks on streets constructed as part of Phase I	Individual segments to proceed prior to building permit issuance for new buildings	Ongoing

Table 6.5.1 Continued				
	Improvement or Plan Component	Action	Coordinating City Department or Public Agency	Anticipated Timeframe
Utilities				
PHASE I	Dry Utilities	Construct dry utilities in coordination with Phase I street construction, including conduits for telecommunication utilities. Work with Xcel Energy to plan, design and locate facilities in concert with the urban design standards of this Plan *	Engineering	2015
	Stormwater Detention Pond	Expand and relocate existing stormwater detention pond per Figure 2-1	Engineering	
	Storm Water Drainage	Construct in concert with new street construction	Engineering	
	Water	Relocate water main, in concert with construction of storm water detention pond/overlot grading	Engineering, Public Works	
	Sanitary Sewer	Relocate sanitary sewer main line in concert with construction of storm water detention pond/overlot grading	Engineering, Public Works	
	Remaining Dry Utilities	Construct dry utilities in coordination with new streets as they are constructed, including conduits for telecommunication utilities. Work with Xcel Energy to plan, design and locate facilities in concert with the urban design standards of this Plan	Developer, with City review by Engineering	Ongoing
	Storm Water Drainage	Construct in concert with new street construction	Engineering	
	Water and Sanitary Sewer Lines	Construct remaining water and sanitary sewer lines to serve new development as it occurs in concert with new street construction	Engineering, Public Works	
	LDCIS Sewer Improvements & Zone 3 Project	Complete improvements to the LDCIS and Zone 3 to accommodate the first phases of development	Public Works	2017

Table 6.5.1 Continued				
	Improvement or Plan Component	Action	Coordinating City Department or Public Agency	Anticipated Timeframe
Streetscape Improvements				
	Streetscape Master Plan	Develop a streetscape master plan that provides detailed design and specifications for each streetscape project. The plan should address hardscape materials, location, spacing and species of street trees, crosswalk enhancements, variations in conditions along the street and relationships of street improvements to curb cuts, alleys, etc.	Community Development; Parks, Recreation and Libraries	2015
	Westminster Boulevard Streetscape Improvements	Work with individual property owners to complete Westminster Boulevard streetscape improvements including sidewalks, street trees, landscape planters, and street parking, pedestrian furnishings and amenities, lighting and public art installations consistent with the Plan and Streetscape Master Plan	Engineering, with input from Community Development	As development occurs
	Eaton Street Median Enhancements	Complete Eaton Street median streetscape/public green space		
	Remaining Streetscape Improvements	Work with individual property owners to complete area-wide streetscape improvements as development occurs, including sidewalks, landscaping, lighting, lane reconfiguration, street parking, bicycle lanes, furnishings and amenities and public art and signage (where applicable)	Community Development; Individual segments to proceed prior to building permit issuance for new buildings	
	Harlan Street Streetscape Improvements	Design according to this Plan and the Streetscape Master Plan; add to the CIP	Engineering; Planning	
	88th Avenue "Road Diet" and Streetscape Improvements	Design and add to the CIP	Engineering; Planning	
	92nd Avenue "Road Diet" and Streetscape Improvements	Design and add to the CIP. Prioritize improvements to the north side of the street to enhance pedestrian and bicycle connectivity to the US 36 bike trail and downtown.	Engineering; Planning	

Table 6.5.1 Continued				
	Improvement or Plan Component	Action	Coordinating City Department or Public Agency	Anticipated Timeframe
Public Green Spaces				
	Public Green Space Master Plan	Vision, programming, design parameters	Parks, Recreation and Libraries; Planning	2015
	Individual Parks Design	Define park facilities, programming and design parameters for all new parks.	Parks, Recreation and Libraries; Planning; Engineering	Beginning 2015, ongoing as parks projects are funded
PHASE I	South Park (Allen Ditch)	Incorporate the construction on new parks into the City's Capital Improvement Program.		2016, construction completion 2017
	Center Park			
	East Park			
	Central Square			
	Station Plaza			
	Identify Additional Park Location		Parks, Recreation and Libraries; Planning	As development occurs
Bike and Pedestrian Trails				
	US 36 Commuter Bike Trail	Complete regional bike route from 92nd Avenue bridge underpass to 88th Avenue	CDOT	Early 2015
	Temporary Harlan Street Trail		Community Development; Parks, Recreation and Libraries	2015
	Allen Ditch Trail			2017
Public Parking				
	On-Street Parking	Install on-street time limit signs	Engineering	As development occurs
	Parking District Structures	Construct district-owned or joint venture parking structures		

Table 6.5.1 Continued				
	Improvement or Plan Component	Action	Coordinating City Department or Public Agency	Anticipated Timeframe
Wayfinding and Public Art				
	Wayfinding Master Plan	Design and identify locations for directional, gateway and navigation signage for destinations, parking and other locations within the Plan area	Community Development	2017
	Public Art Master Plan	Identify locations, artists, art installations and other regional partners to locate art within the public spaces in the Plan area	Community Development; Parks, Recreation and Libraries	

7 GLOSSARY OF TERMS

A

Alley

A street type as illustrated in Section 3.4.7.

Access Point

A point of entry on a blockfront providing access to parking or service facility areas.

Apparent Face

The largest building face of the tower portion of a podium high-rise building.

B

Block

The primary bounded areas defined for the purpose of site organization used to regulate the land uses, heights, and design requirements of this Master Plan. The Plan area is divided into blocks designated as "A-1" through "D-6."

Blockfront

The plane of the edge of each side of a block or sub-area of a block facing a public right-of-way or open space.

Blockfront Designation

A term used in the block development standards to differentiate and identify each blockfront for the purpose of applying the development standards.

Build-to Line

A line, parallel to the property line, that must be occupied by a specified percentage of the

building façade. The build-to-line is measured as a distance from the property line. For example, a five-foot build-to line would be located five feet from the property line within the parcel.

Building Face

The exterior wall of a building.

Building Front

A generally vertical building plane facing a specific direction or looking out upon something, typically a public right of way or public space.

Building Type

A structure category determined by function, disposition on the lot, and configuration, including frontage and height. There are ten building types permitted in the plan area: rowhouse, flex/loft, courtyard, urban block, liner with garage, podium, podium high-rise, exposed garage, urban anchor, and urban supermarket.

C

City

Refers to the various Departments of the City of Westminster, Colorado

Courtyard Building

A low-density building type defined in Section 4.3.4.

D

Dooryard

A frontage type as defined in Section 4.4.4.

Driveway

As defined in Section 4.6.6.

E

Elevation

An exterior wall of a building not along a Frontage Line.

Encroachment

Any structural element (including architectural features) that extends from the Building Face into the public right-of-way or Setback. Permitted Encroachments are provided in Section 4.5.9.

Encroachment Area

The area of land between the Building Face and the back of the curb, where Encroachments may be located.

F

Façade

A Building Face that is along a Frontage.

Façade String

A series of Row House or Flex/Loft units attached together in a single building.

Façade Width

The horizontal distance of a single building Façade.

Fenestration

The arrangement and design of windows and other openings on a building's Façade.

Flex/Loft Building

A low-density Building Type defined in Section 4.3.3

Foot Candle

A unit of illumination on a surface that is everywhere one foot from a uniform point source of one candela and equal to one lumen incident per square foot.

Forecourt

A Frontage Type as defined in Section 4.4.6.

Frontage

The extent of a building or of land along a public right-of-way or open space.

Frontage Occupancy

The minimum percentage of the Block Front that must contain a building. Frontage Occupancy requirements shall apply to the first three floors of a building.

Frontage Type

As defined in Section 4.4.

Front Yard

The area between the building and the front property line, typically landscaped or paved.

Full Cut-Off

Describes a luminaire that has no direct up-light (no light emitted above the horizontal) and complies with glare requirements as defined by the Illuminating Engineering Society of North America (IESNA).

Furnishing Area

A multi-purpose area that serves as a buffer between the pedestrian travel way and the vehicular travel way and parking on the street. It provides space for sidewalk appurtenances such as street trees, planting strips, street furniture, public art, sidewalk café seating, sign poles, signal and electrical cabinets, fire hydrants, bicycle racks and bus shelters.

G

Greenscreen

A frame attached to a building wall built along the Build to Line, building edge, or on the same plane as the Façade that allows for vines and plant growth. It may mask a parking lot from the street, provide privacy to a side yard, and strengthen the special definition of the public realm.

Ground Plane

A horizontal plane of reference from which vertical measurements can be taken. Usually the ground plan refers to the adjacent grade at the sidewalk.

H

Habitable Space

Space in a structure that is occupiable and is used primarily for living, sleeping, eating, selling of goods, or cooking. Bathrooms, closets, halls, storage areas and utility spaces are not considered habitable spaces.

Habitable Projecting Space

The portion of the building enclosed by walls and a roof that projects beyond the Building Face and is raised a minimum of nine feet from the sidewalk, such as bay windows.

Habitable Encroaching Space

The portion of the building enclosed by walls and a roof that projects beyond the Building Face along the ground floor.

L

Large-Scale Architectural Lighting

Lighting elements placed on a significant portion of a building's facade to highlight or accentuate vertical, horizontal, or other elements of the structure's architecture.

LEED

Leadership in Energy and Environmental Design. A green building rating system developed by the US Green Building Council that provides a suite of standards for the environmentally sustainable design, construction and operation of buildings and neighborhoods.

Liner with Garage Building

A medium density Building Type defined in Section 4.3.6.

Lot Area

As defined in the Westminster Municipal Code.

Lot Width

The horizontal distance between side lot lines, measured at the Property Line at right angles to the lot depth at a point midway between the front and rear lot lines.

M

Maximum Height Ratios

The ratio (expressed as a percentage) of the floor area of the upper stories of a building to the building footprint at grade.

Minimum Frontage Occupancy

(also Minimum Building Frontage Occupancy) is the minimum percentage of a blockfront at which a building frontage is set either at or within ten inches of the build-to line or within the minimum and maximum setback lines, as required by the block development standards.

Maximum Upper Level Frontage Occupancy

Certain building types have limitations on the percentage of the building frontage that can be occupied above 45 feet in height. The upper level frontage occupancy is based on the ground-floor plan. Façade portions

that are set back at least eight feet from the ground-floor building face are considered as not occupying the upper level frontage

N

Non-Habitable Projecting Space

The portion of the building that extends beyond the Building Face, which is not enclosed by walls and a roof and raised a minimum of nine feet from the ground floor, such as a balcony.

Non-Habitable Encroaching Space

The portion of the building that extends beyond the Building Face along the ground floor, which is not enclosed by walls and a roof, such as a Stoop.

P

Plane Break

A vertical or horizontal offset in a Building Face used to create articulation and break up long wall planes.

Podium High-Rise Building

A high density Building Type defined in Section 4.3.8.

Primary Entrance or Principal Entrance

The main point of access for pedestrians into a building.

Principal Frontage

The Frontage designated to bear the addresses of and Principal Entrances to the individual units of a Row House or Flex/Loft Building, or other building.

Private Street

See definition of Street, Private.

Projection

An architectural element or portion of the building that extends beyond the Building Face into the public right-of-way or Setback that is raised a minimum of nine feet from the sidewalk or open space.

R

Row House

A low density Building Type defined in Section 4.3.2.

Roadway

The area in the right-of-way as measured from curb to curb intended for vehicular travel, as well as bicycle travel, in designated areas.

S

Side Yard

The private (or semi-private) open space located on the sides of a Row House or Flex/Loft Building Type.

Sidewalk Dining Zone

A portion of the public sidewalk or private front yard dedicated to outdoor dining.

Sidewalk Grade

A level plane along the top of the sidewalk pavement.

Sign

Any display board, wall, object, or any other material or medium used to announce, declare, demonstrate, display or otherwise present a message and attract the attention of the public. See Westminster Municipal Code.

Stoop

A Frontage Type as defined in Section 4.4.5.

Storefront

A Frontage Type as defined in Section 4.4.2.

Storefront Cafe

A Frontage Type as defined in Section 4.4.3.

Street

A public or private thoroughfare, which affords principal means of access to the abutting property. See Street Types in Section 3.4.

Street, Public

A public thoroughfare, which affords principal means of access to the abutting property. See Street Types in Section 3.4.

Street, Private

A private thoroughfare, which affords principal means of access to the abutting property.

Street Wall

A series of generally coplanar building faces that face and spatially frame a space, typically a public right-of-way or similar public space.

Sub-Block

A portion of a block created by public or private streets or rights-of-ways, or by legal subdivision of a block.

Swale

A low or slightly depressed natural area for drainage.

T**Tower**

The portion of a Podium High-Rise over five stories in height (see Section 4.3.8).

U**Urban Block Building**

A medium density Building Type defined in Section 4.3.5.

W**W.M.C.**

Westminster Municipal Code, the Municipal Code of the City of Westminster, Colorado.

8 APPENDIX

prepared by:

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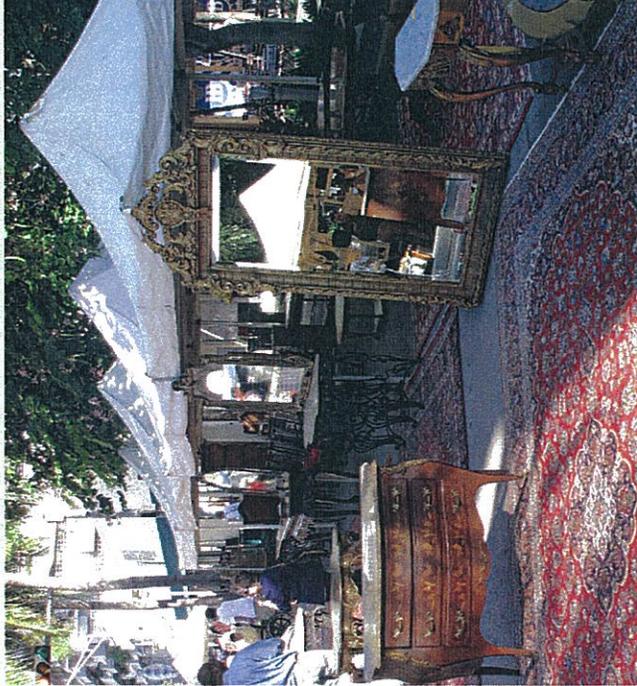
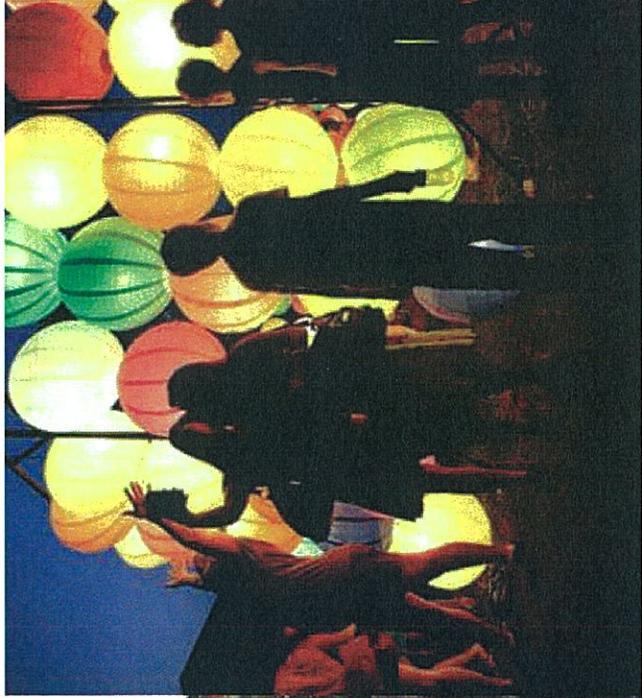
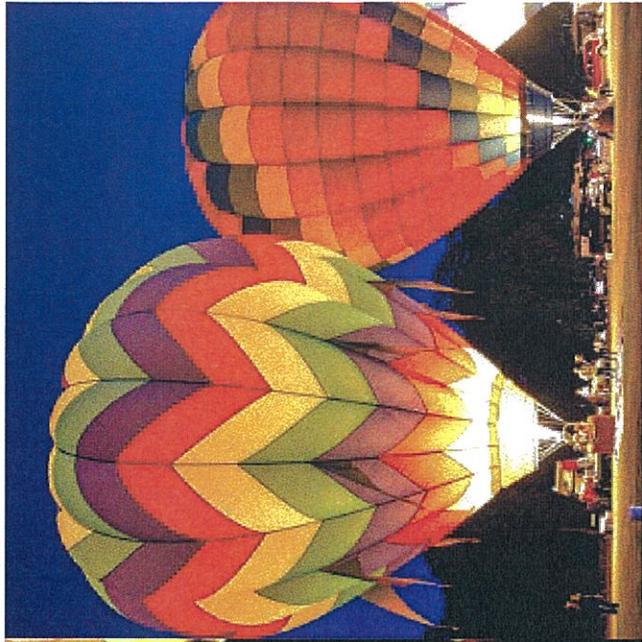
Martin/Martin Inc.

Communitas

Project for Public Spaces

8.1

PUBLIC SPACE STUDY



PLACEMAKING IN DOWNTOWN WESTMINSTER

Draft Report



Prepared for
CITY OF WESTMINSTER

Prepared by
PROJECT FOR PUBLIC SPACES

DRAFT REPORT



CONTENTS

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INTRODUCTION

In creating a new city center, the City of Westminster has the remarkable opportunity to redefine itself as a 21st century city. The City and its Westminster Economic Development Authority had the foresight to purchase the 104 acre Westminster Mall site, strategically located in its center and adjacent to US 36, as the site for a new downtown. Along with a new residential and commercial core, the downtown can offer public spaces unlike any that the residents currently enjoy. These new streets, parks and plazas can provide opportunities that don't currently exist for community gatherings and neighborhood interaction, and where residents can informally "hang" with each other.

The old Westminster Mall held a symbolic pride of place for residents of Westminster. It was the place where they played as children, took their families for dinner and a movie, had their first dates, learned to drive and hung out as teenagers. Without it, residents felt they had lost the heart of their community. Thus the new downtown Westminster must fill this missing void and at the same time provide the urban core that the city has always lacked. In addition, the City now has the chance to create new parks and plazas

that reflect all we have learned about how great public spaces work; how they can become exciting destinations that build community and foster a sense of belonging.

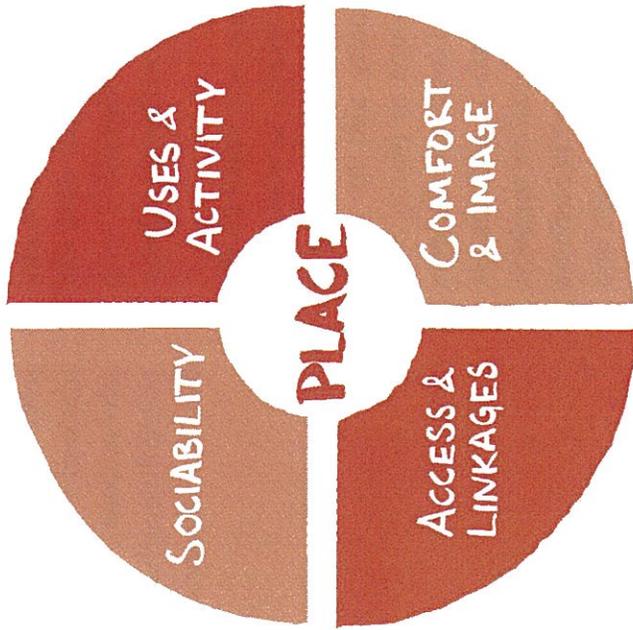
Westminster has a special identity and attraction. People move here not just because of its convenient location between Denver and Boulder, but also because of its majestic views of the mountains and the skyline of Denver, its strong connection to the mountains and its great access to open space. It is viewed as a smaller and less urban place than Denver with great opportunities to be outdoors and engage in an active lifestyle. Westminster has had the benefit of a progressive leadership that has been working to support residents' desire for health, wellness and outdoor recreation, while protecting open space and curtailing some of the worst effects of traditional suburban development.

While residents love the trails and open space, the City doesn't have many intimate, social spaces. Even the outdoor performance areas at City Park are better suited to 40,000 people than 2,000 people, let alone 200. There seems to be a desire for smaller public gathering spaces. Furthermore, outside of the

lifestyle malls, there are few commercial streets and plazas in Westminster where commercial uses and dining establishments seamlessly intertwine with streets, sidewalks and public space as they do in most vibrant cities and towns.

Project for Public Spaces, Inc. was asked by the City of Westminster to help develop a vision for the new downtown's public spaces. We gathered information about the community and its needs through a number of focus groups in March 2014 with city staff, City Council and local stakeholders (see appendix for the meeting notes). In addition, we met with a number of institutions, creative thinkers, representatives from Metro Arts Community, business people and non-profit leaders from both inside and outside Westminster to help us create concepts for the program as well as to identify future programming partners. This report represents a vision for the new

public spaces that we hope reflects the ideas and ideals of the citizens of Westminster, along with the adventurous spirit—and a sense of the unlimited possibilities—that we found in the people we met from the Denver area.



WHAT MAKES A GREAT PLACE?

PPS has distilled the qualities that make a great place into the following four basic ingredients:

Activities and Uses

A great place has a range of destinations and activities that attract a variety of community members. The activities keep the public space lively, inviting and safe at all times of day.

Access and Linkage

A great place is easy to get to and see into. Linkages and open sight lines should connect different destinations and help create a people-friendly environment.

Comfort and Image

Great public spaces are comfortable to use and help give a city a unique identity. Amenities, such as benches, movable tables and chairs, umbrellas, shade trees, essential in any good square.

Sociability

A sociable place is one where people want to go to meet friends and interact with a wide range of people who are different from themselves.

PLACEMAKING PRINCIPLES

1. Plan for People and Places.

If you plan for cars and traffic, you get cars and traffic. If you plan for people and places, you get people and places. Put people first, on foot and on the ground, not speeding by at 50 mph. Ask “What will the pedestrian experience be?” NOT, “How can we get cars through as quickly as possible?”

2. Start with a Program of Activities.

Start with a clear understanding of the activities that are going to occur in the space. Design and management will then support those activities. Successful public spaces are lively, secure and distinctive places because they offer many things to do and reasons for people to be there. Plan for different audiences, so that groups can come together and engage in enjoyable, sociable ways.

3. Create Destinations.

The Power of Ten. (Details on following pages)

Every great district or downtown needs at least ten great destinations to create a critical mass of places where tourists and residents alike could become immersed for hours. Taking the next step, each destination needs ten things to do - activities and smaller scale experiences that make it a must-visit, beloved destination. Downtown Westminster needs ten destinations with ten things to do.

4. Triangulate.

Triangulation is the concept of clustering activities together to create a busy, dynamic place for many different types of people at different times of day. For example, in Paris’s Luxembourg Gardens, the combination of a puppet theatre, carousel, café, bocce court, and basketball court around a children’s play area makes

a very exciting destination for all ages. A museum next to an outdoor restaurant and a retail street will be a far busier place than any one of those uses by itself.

5. Activate Edges.

The area around a public space is as important to its success as the design and management of the space itself. A blank wall contributes nothing to the activity of the street. Successful plazas are usually surrounded by activities that spill outside. The reason the Campo in Siena, Italy is a vibrant place while Boston City Hall Plaza is always deserted has a lot to do with the activities surrounding the plazas.

6. Flexible Design.

The use of a great public space changes during the course of the day, week, and year. To respond to these natural fluctuations, flexibility needs to be built in. For example, instead of a permanent stage that might limit other uses in the

square, a retractable or temporary stage could be used. Likewise, it is important to have on-site storage for movable chairs, tables, umbrellas, and games so they can be deployed or removed at a moment's notice.

7. A Seasonal Strategy.

Every season brings with it an array of unique opportunities for public space activities. Changing the activity and planning with the season ensures year-long vitality and use. Skating rinks, outdoor cafés, markets, horticulture displays, art and sculpture help adapt the use of the space from one season to the next.

8. Reach Out Like an Octopus.

Just as important as the edge of a public space is the way that streets, sidewalks, and ground floors of adjacent buildings lead into it. Like the tentacles of an octopus extending into the surrounding neighborhood, the influence of a good

square starts at least a block away. Vehicles slow down, walking becomes more enjoyable, and pedestrian traffic increases. Elements within the square are visible from a distance, and the ground floor activity of buildings entices pedestrians to move toward the square.

9. The Central Role of Management.

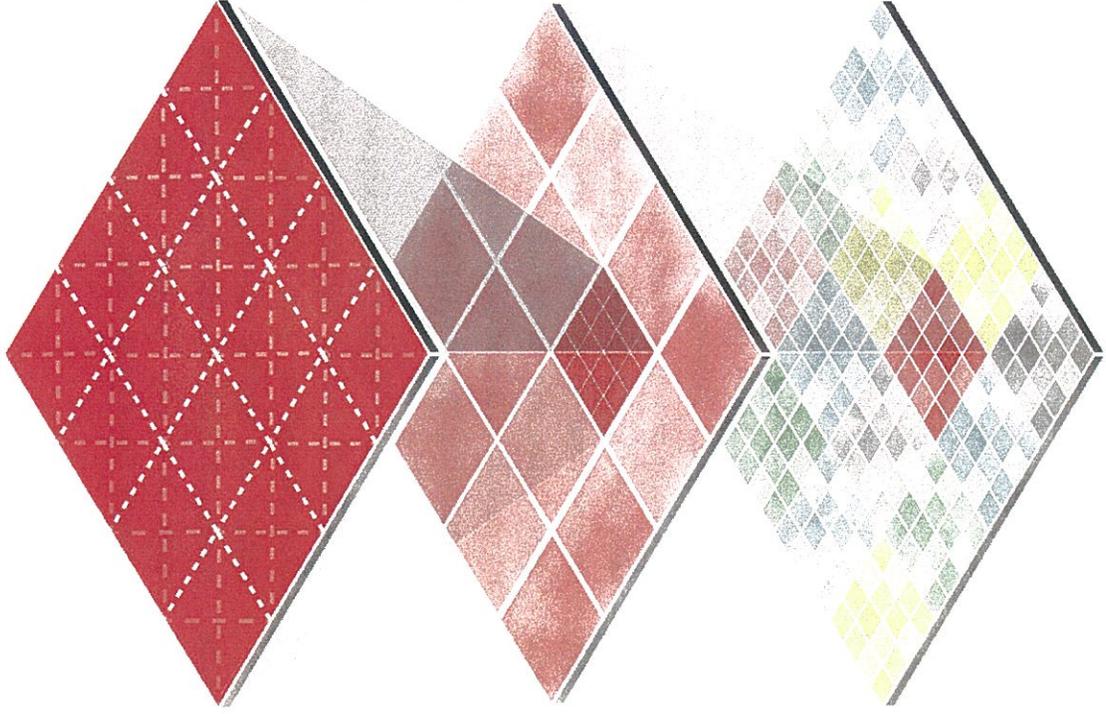
The best places are ones that people return to time and time again. The only way to achieve this is through a management plan that understands and promotes ways of keeping the space safe and lively. For example, a good manager understands existing and potential users and gears events to both types of people. Good managers create a feeling of comfort and safety in a square, fixing and maintaining it so that people feel assured that someone is in charge. Good managers find creative funding strategies to keep rents low, attract a range of tenants and incentivize the presence of tenants who may not produce

a lot of money for the site, but who bring a lot of foot traffic and are invested in the area.

10. "Lighter, Quicker, Cheaper"

LQC describes a short-term development strategy that has produced some of the world's most successful public spaces — one that is lower risk and lower cost, capitalizing on the creative energy of the community to efficiently generate new uses and revenue for places in transition.

LQC can take many forms, requiring varying degrees of time, money, and effort, and the spectrum of interventions should be seen as an iterative means to build lasting change. By championing use over design and capital-intensive construction, LQC interventions strike a balance between providing comfortable spaces for people to enjoy while generating the revenue necessary for maintenance and management.



PLACE

DESTINATION

CITY/REGION

POWER OF 10 IN DOWNTOWN WESTMINSTER

To be successful, cities need places. They need destinations that give an identity and image to their communities and that help attract new residents, businesses and investment, but they also need strong community places for people to go. A place might be a downtown square, a main street, a waterfront, a park, or a library. Cities of all sizes should have at least ten places or destinations where people want to be. What makes each destination successful is that it has sub places within it. For example, a park needs at least ten sub-places: a café, a children's play area, a place to bird-watch or to experience water, a place to sit, somewhere to meet friends, etc. Within each of the sub-places, there should be at least ten things to do. Cumulatively, these activities, places and destinations are what make a great city. This is a big idea that PPS calls the "Power of 10".

With the right planning and management, Westminster Downtown will become one of the ten great destinations in the city. It should offer the places and activities that will draw people to it on a daily basis. Using the Power of 10 concept as a framework, it then suggests that there are several different types of places that the square should have within it. The places within the Downtown and the activities that will enliven and define them, have the potential to create these special places. They will be the attractions that locals and visitors will return to, again and again, where friends will gather and where everyone will experience the unique qualities of a great public spaces in the heart of Westminster.

VISION

From the Power of Ten workshop, focus groups and interviews with stakeholders and city staff two things are clear in terms of placemaking for the public spaces of the new downtown Westminster. The first is timing. There is currently excitement and demand in Westminster for authentic downtown public spaces that reflect the character of the community and are different from the lifestyle mall spaces offered at The Orchard and other similar places. This suggests that there are opportunities to pursue short and medium-term strategies for creating interim public spaces and experiences on the site of the Westminster Mall as the downtown grows around core public spaces, using “lighter, quicker, cheaper” strategies and experimenting with events and activities.

The second is that authenticity will be key for the success of the public spaces of downtown Westminster. There is no one single theme that can express what is special and unique about Westminster and its new downtown. Unlike a “brand” which focuses on a single theme, and is by its nature “crafted,” an authentic downtown experience has a number of facets or themes that define it. Among the themes discussed for the new downtown are health and fitness; food and

gardening; tech-oriented amenities and activities; dynamic, interactive art; community celebrations and gatherings; flexibility; and spontaneous self-directed activities and experiences.

THEMES

Health and Fitness

The City of Westminster offers a wide array of recreational opportunities in its highly programmed recreational and park facilities. Health and fitness will be reflected in the new downtown not by duplicating programs that are better sustained elsewhere, but by supporting individual and small group health and exercise uses that are more urban and oriented towards sharing and community building outside of the team model. Such activities may include rock climbing and bouldering; parkour; slack-line walking; urban skateboarding and BMX biking; ice climbing basics; group and individual exercise through classes, personal training, peer training, and outdoor exercise stations, etc. The downtown would offer an environment for more urban, spontaneous and self-guided health and fitness experience that encourages people to gather, share and be active outdoors with other in their community.

Food and Gardening

Food is a major theme for most successful public spaces. As William H. Whyte, the mentor of PPS, put it: "If you want to seed a place with activity – put out

food." This observation is true today just as it was when he first made it in the 60's. In fact, mobile and outdoor food (food trucks, carts, market stalls) have become a major generator of activity and economic vitality for communities across the US, including Westminster. While portable food will certainly be available in one form or another in downtown Westminster, outdoor terraces attached to brick-and-mortar cafes and restaurants will also be an important use. What can give the downtown its special twist to offering food and drinks is not only the food/drink itself, but the way it was grown, brewed or produced. The park spaces of the downtown can offer opportunities for gardening-decorative, as well as food-oriented, and especially in the short and medium-term, before the downtown has been fully developed, they can offer a great use for existing land that attracts community gardeners as well as foodies. Stakeholders participating in focus groups and interviews spoke of vegetable and kitchen gardens attached to food establishments as an activity that links consumption with growing food, and brings community members in contact with their food and good growing practices. The "suburban-urban" character of downtown Westminster's public

spaces allows for not only gardens that grow food, but potentially for other food-related activities in a garden environment, such as bee-keeping (for example Paris' Luxembourg Garden has an apiary where visitors can learn about apiculture); canning and pickling; wild edibles; water conservation and purification; composting; and so on.

Tech-Oriented Amenities And Activities

Today technology is all around us constantly, and public spaces can use it to help people feel more connected and better networked in the public realm. Downtown Westminster is looking to attract millennials as a major user group of people who not only work, play, relax, dine and shop here, but who also choose to live here. In addition, Westminster is already a significant hub for tech businesses in the area. Providing tech-oriented activities and amenities in the public spaces of downtown will help attract millennials and tech workers. While free public wifi has become a standard in successful public spaces, opportunities to use tech solutions to enhance social networks and interactions in connection to the space should also be pursued. Such opportunities may range from large screens projecting video, film, discussions, news and other content, to light projections, to QR

codes offering information and interaction and place-specific apps like Shake Shack's in New York's Madison Square Park which shows users how long the line is for burgers, etc.

Dynamic, Interactive Art

Art has been a major topic of discussion with stakeholders and city staff alike. While Westminster doesn't seem to have a specific art theme, art can be present in the new downtown's public realm in many different forms. Special organized events such as performances and exhibits involving local and regional artists and arts institutions are only one aspect of the arts and the way they could be present here. Arts festivals and fairs were also discussed with a focus on an event that would have a local flair and attract visitors from around the region, such as an Affordable Arts Fest or a site-specific themed art festival curated by the Cherry Creek Arts Festival. The visual arts were also discussed and should be present here with a general consensus to seek art that is interactive, engaging, flexible, and temporary or rotating. Site-specific installation art could also be commissioned here, and could serve as an attractor particularly in the short and medium-term. Interactive art was proposed as a major element that

would engage children and families with elements that invite spontaneous play, hands on activities, and generally stimulate children's imagination and creativity. Last but not least, art could present an opportunity to connect with technology in a variety of ways from QR codes providing information about specific installations or pieces, to engaging people in the creation of art by using their smart phones to take photos, and share them through social networks and interactive apps.

Community Celebrations And Gatherings

Downtown's public spaces are meant to, above all, provide the places for spontaneous and organized community gatherings and celebrations that are lacking in Westminster. While these uses are now served by some of the city's parks, a central gathering space, replacing what the mall used to be, is strongly desired. The spaces downtown will provide a more urban experience, as well as places that are more intimate in size and foster spontaneous gatherings and sharing.

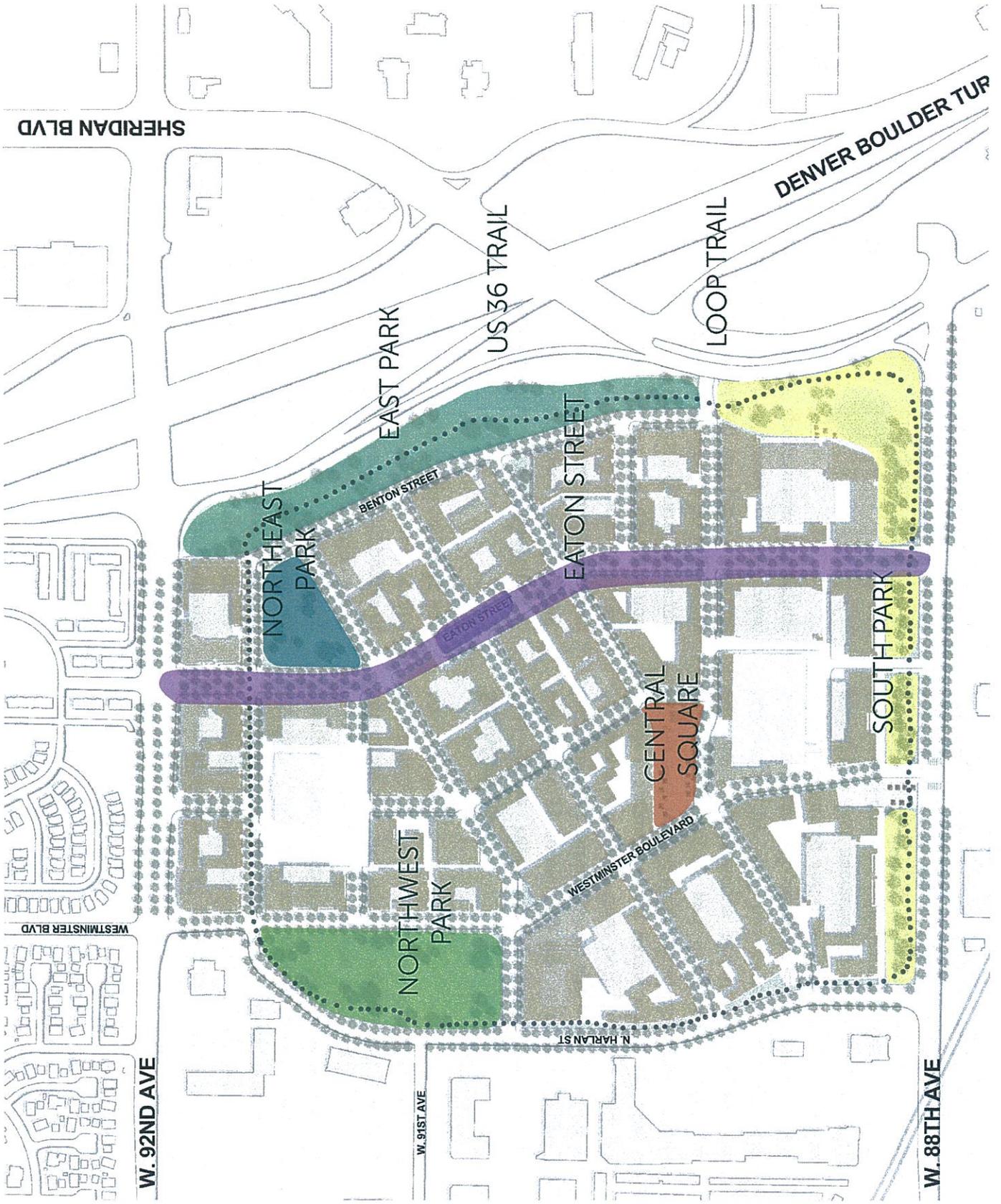
Flexibility

The design of downtown public spaces should allow them to change over the day, week, and year with the seasons, to accommodate larger gatherings as well

as spontaneous small group or individual activity. Above all, flexibility will ensure that the spaces could be sustained and evolve over time as experiments are conducted and needs and interests in the community change. This flexibility will be achieved not only through the use of lighter, potentially movable amenities, but also through careful and intentional programming that is re-evaluated and re-examined on a regular basis.

Spontaneity

This theme kept coming back in stakeholder discussion as something that is sorely needed in Westminster's public spaces, and a element that will set downtown apart from both lifestyle malls and highly programmed city parks. While planning for spontaneity may initially sound like a contradiction in terms, planning and designing to allow and encourage spontaneous activities is a very wise approach. City staff has already indicated their desire to create a "bureaucracy-free" zone downtown, where permitting and other regulations are relaxed, and are in fact encouraging community members to initiate activities. Additionally, security and other regulations could be redefined in order to encourage engagement, and physical elements can be used to help people use the public spaces downtown.



SHERIDAN BLVD

DENVER BOULDER TURNPIKE

US 36 TRAIL

LOOP TRAIL

EAST PARK

NORTHEAST PARK

BENTON STREET

EATON STREET

EATON STREET

CENTRAL SQUARE

SOUTH PARK

NORTHWEST PARK

WESTMINSTER BOULEVARD

WESTMINSTER BLVD

W. 92ND AVE

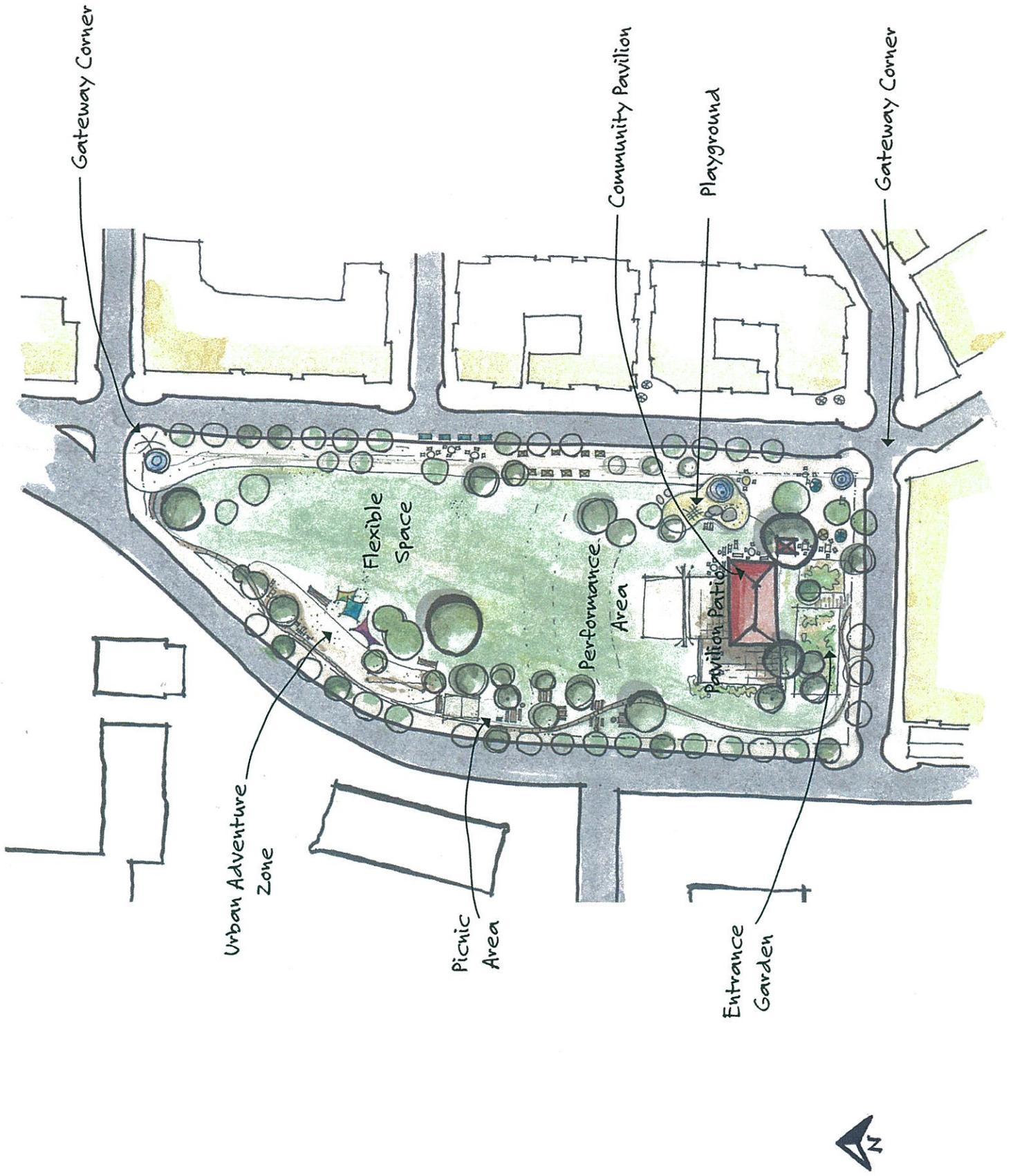
W. 91ST AVE

N HARLAN ST

W. 88TH AVE

TEN DESTINATIONS OF DOWNTOWN WESTMIN-

The New Downtown Master Plan recognizes that access to public green space significantly contributes to the quality of life in a city. We would amend this statement by saying that the New Downtown will need great public spaces that are more than “green spaces” to define the quality of life for all citizens and because they are essential to community wellbeing.



Entrance Plaza

NORTHWEST PARK

The Downtown Master Plan originally envisioned this park (Big Park) as a park offering a range of activities. The Placemaking stakeholder meetings and interviews revealed that this four acre park, located at the edge of the development site needs to be more than a neighborhood park. NorthWest Park should be a great urban park and a destination that will eventually become the center of the new downtown connecting to future development across from Harlan Street.

NorthWest Park will be first and foremost a community gathering place. Its proposed footprint of 4 acres allows for the park to become a real urban destination that can draw people not just from downtown and its immediate surroundings but from all of Westminster and beyond. NorthWest Park will be different from the other parks in Westminster - instead of formal sports fields it will have a *flexible great lawn* that could host a vast array of activities like Frisbee, volleyball, pick-up soccer,



Topiary focal point

badminton, and other social lawn games. The lawn will also be used as a venue for performances, concerts, outdoor movies, parties and celebrations. The great lawn would be a space that can comfortably host an audience of a few hundred up to several thousand spectators without displacing other activities taking places on its edges.

The great lawn will be anchored by a *multi-functional community pavilion* to the south. The pavilion was envisioned as a light structure, potentially with a covered porch or patio that could serve as a rain venue for smaller events and activities, restrooms, storage space, and a flexible community room with a small catering kitchen that would be used for community meetings and gatherings; various classes and activities; temporary gallery and museum exhibits; small performances; weddings and parties; and other park and community related uses. The pavilion porch would extend onto a flat area designed to accommodate movable stages of several sizes, large outdoor screen and related equipment, etc.

A more private patio would wrap around to the west of the pavilion which could be used as an outdoor venue for weddings, parties, community picnics, wine and beer tastings, etc.

The main gateway into NorthWest Park will be the corner of Westminster Boulevard and E Street, a corner that is very visible from Westminster Boulevard and potentially from Central Square. This corner of the park should be vibrant, attractive and active with a *mini-plaza* leading visitors into the park, a *play*

area near the community pavilion and outdoor seating around a *coffee kiosk* or *cart* providing comfort and amenities to parents and caregivers taking their children to the play area.

The 91st Avenue edge of the park, leading up to the community pavilion would offer an *intimate garden* setting where small



Community picnic/potluck

activities like readings, gardening and nature classes etc. could take place. The garden would also be a beautiful drop-off area for special events at the pavilion.

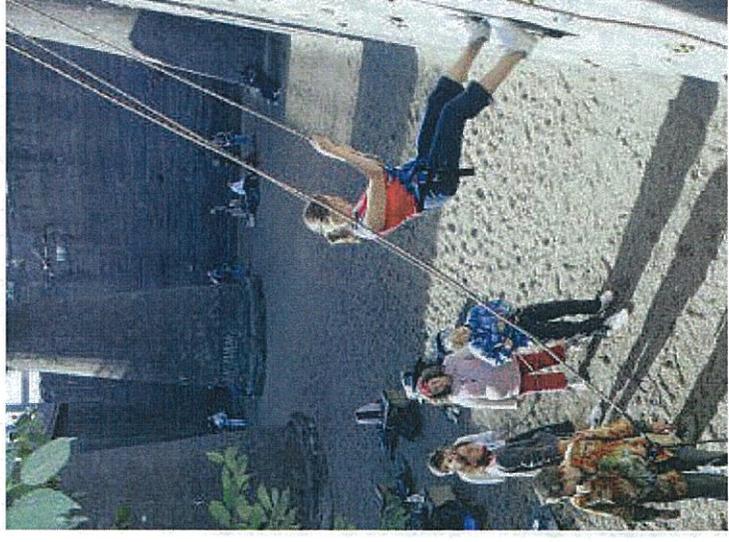
The edge of NorthWest Park along Harlan Street could preserve and integrate some of the existing mature trees to frame a picnic area, as long as they don't create a barrier between the park, Harlan Street and the communities beyond. Perhaps some of the trees could be relocated to create shaded pockets where simple amenities for picnics and community potlucks would be located including picnic tables, social seating like circular benches, grills and a fire pit. On street parking along Harlan Street will help people using the picnic area.

Special features like a portable pizza oven trailer could also easily be accommodate along Harlan Street to support picnicking and gatherings.

An outdoor adventure activity area is proposed for the northern edge of NorthWest Park along Harlan Street. This area is envisioned as a place for a variety of individual and social fitness and wellness activities and may include rock and boulder climbing, ice climbing in winter, slack-lining, log rolling, urban skateboarding and bmx biking for beginners, sharing cross-country skiing and hiking tips, archery, and other similar uses. This area could also offer some game courts for bocce, petanque,



Outdoor collective classes



Outdoor adventure activities



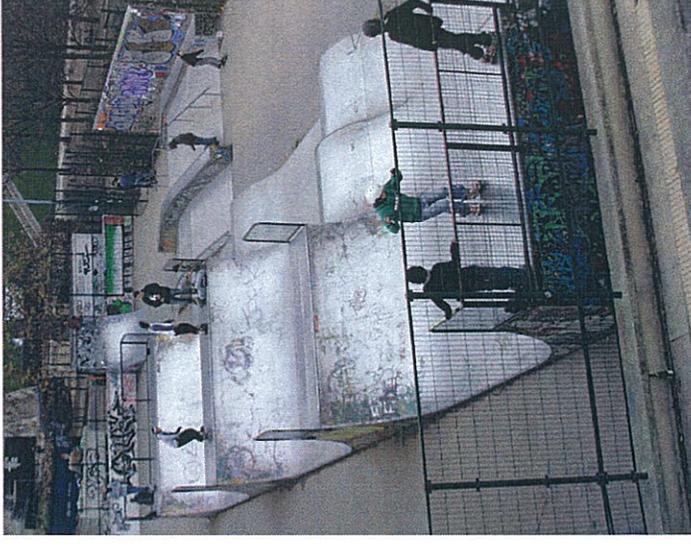
Take-out food vendors

Skatepark

could be double loaded along the sidewalk while others spill onto the northern part of the great lawn. A band of the sidewalk along the lawn could be surfaced with a softer permeable material like compacted sand or gravel, while the span along the curb should be a harder paving surface. Such a treatment would delineate the space and make it feel less wide when no events are happening along it. It would also clearly link it to a *soft-surface walking and jogging loop* that surrounds the entire park. Distance markers could be provided along the length of the loop, while information would be available at a few key points like the two gateways and the outdoor adventure area.

or shuffleboard, linking the outdoor adventure area with the picnic area. The northern tip of the park would feature *another gateway area* that makes it very visible and attractive to people arriving downtown along Westminster Boulevard from 92nd Avenue. The gateway should be distinct and feature a water element, an attractive interactive piece of art, or even a green sculpture like a topiary at an important focal point.

A *wide promenade sidewalk* along Westminster Boulevard would offer unobstructed fluid access into the park and could be used for a variety of events including markets, festivals, food truck rallies, swap meets, etc. For special larger festivals and fairs some of the vendors



Pop-up and outdoor market
Placemaking in Westminster



Kid-oriented show/performance

Movable seating at building entrance



Outdoor venue for events (weddings, parties, receptions...)



Adventure playground



Adventure playground and seating



Games Area

CENTRAL SQUARE "THE PIAZZA"

Central Square should become not just a gathering space, but *downtown's living room*, the way Italian piazzas are the heart of their communities. The master plan proposes a square that is framed by buildings on all sides, with ground floor retail lining its edges. In addition, shops, restaurants and cafés on the north side can spill their terraces and displays directly onto the square, while Westminster Boulevard and B Street are envisioned as major retail corridors linking the square. B and H Streets have both been designed with the idea that traffic circulation could be redirected away from these two streets to allow for easy street closures that would help expand the square and host special events like markets, festivals, parades, etc.

In addition to food, beverage and dining terraces on its north side, the square will feature activities and attractions for families with children, millennials, seniors, and everyone in between. Its *center should be left open* to allow for gatherings,



Interactive piece of art with water sprinklers

markets, small performances, and civic celebrations, while its two corners each offer an attractive node of activity anchored by a fitting focal point.

The Westminster Boulevard corner will need a *strong focal element* to attract people as they drive along the downtown's main spine. This element should be both attractive and interactive, such as a *water feature* or an *interactive piece of art*. Flexible outdoor seating should surround this focal point and allow people to be both comfortable and active here. Amenities could include movable tables and chairs, umbrellas for shade, perhaps a cart or stand

offering coffee, newspapers and snacks. A *flexible platform* could serve as a planting bed for a few shade trees and offer opportunities for people to sit, lounge using beach chairs or colorful bean bags, while also being used as an impromptu stage for simple performances, buskers, and other small activities around the water feature/art piece. The platform will also help delineate this area from the larger central area and its uses.

The area directly to the north of the fountain is proposed as an *urban game zone*, offering people opportunities to engage in simple urban games such as ping

pong, bocce or petanque, fussball, bag toss, etc. Table games will also be hosted here like chess, scrabble, dominoes and checkers. A giant chess set could also be considered here as it will help attract people and clearly show the intended function of the area. Game sets could be made available either in one of the storefronts lining the square, or in a portable kiosk or cart. There may also be opportunities to introduce electronic games component here such as a *large screen* to play video, xbox, or nintendo games etc. The adjacent platform could be used for karaoke, interactive dance and game sessions, etc.



Multi-use space with bocce field and movable seating
Placemaking in Westminster



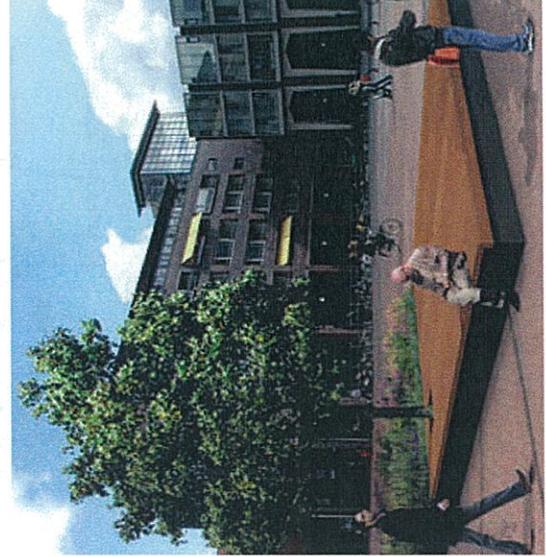
Covered lounge

Public seating around a kiosk that features outdoor bar, storage and restrooms



At the corner of B and H Streets a small *European carousel* could attract families with kids and serve as a beautiful and visible focal point. The Carousel would anchor a family area with colorful seating for adults and kids, small scale child-friendly art, an ice cream cart, and other activities for kids.

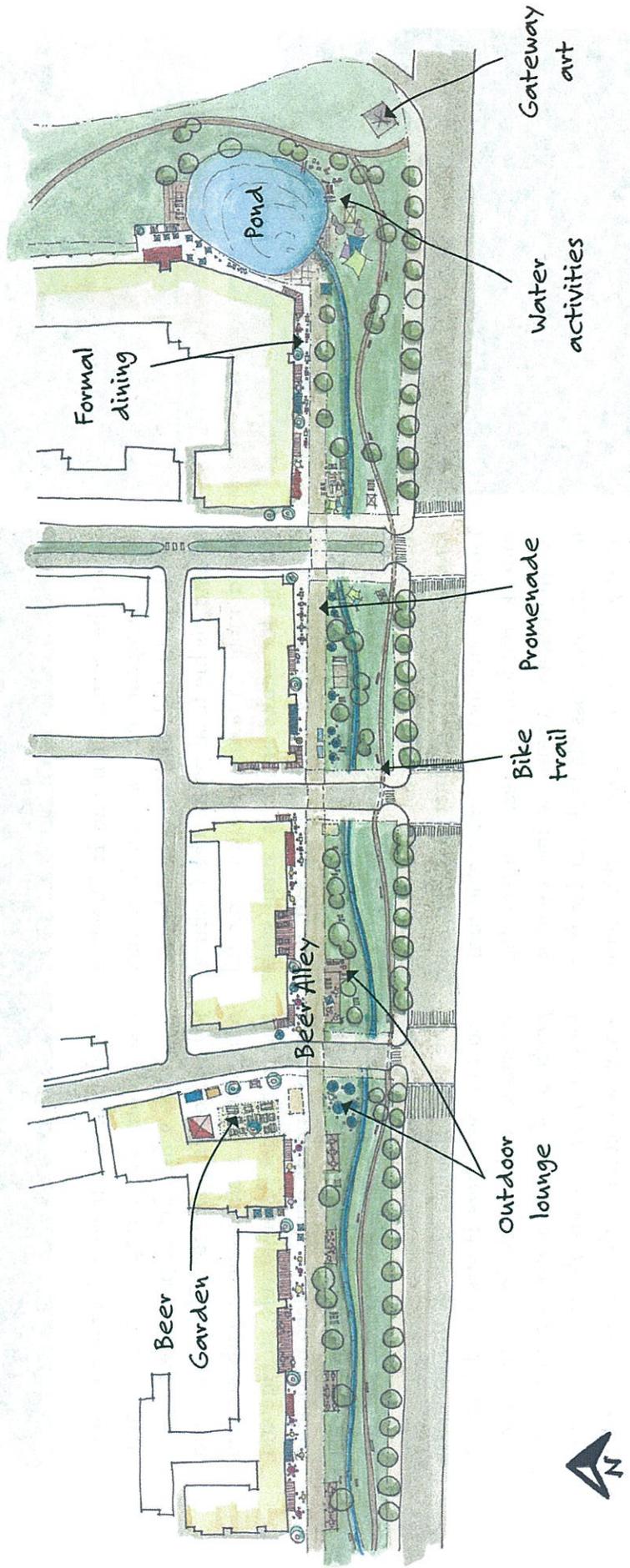
Adjacent to the carousel family area along H Street we propose an *urban lounge* area with a distinct character. The lounge would include comfortable furniture like outdoor couches, loungers, deck or Adirondack chairs, swing benches, fire pits, and possible table service from nearby café or bar. Bryant Park's Southwest Lounge is a great model for such an amenity and it features an outdoor bar,



Outdoor dining and seating with greenery

which is used in the evenings and for special events, but during the day the area would be a free for all park users to enjoy without a purchase. This area could also feature a small kiosk with storage and restrooms. Alternatively, storage and restroom needs could be accommodated through an agreement with one of the merchants facing the square, or with the building developer.

The small triangle space at the northern most corner where H street and C street intersect could be dedicated to *bicycle parking*, bike racks or even enclosed bike lockers that are visible from C street, which will connect the square to the US 36 trail and the bike activities there.



SOUTH PARK AND PROMENADE

South Park is already a green space with some mature trees, an irrigation ditch, and a trail along it. The ditch itself is a lateral extension of the Farmers' High Line Canal and flows on an easterly course through the site.

The ditch has water in it only at certain times of the year and its flow is regulated by the water district. South Park provides a pleasant green buffer from busy 88th Avenue and its trail links to the US 36 trail, currently under construction.

The downtown master plan designates the ground floors of all buildings fronting the space for active uses calling out restaurants. The plan also specifies a *pedestrian promenade* along the northern edge of the park lined with outdoor dining terraces. The Placemaking process revealed a potential for sections of the promenade and adjoining terraces to have a different character and purpose related to their function. *Two different zones* could be created along the promenade - one



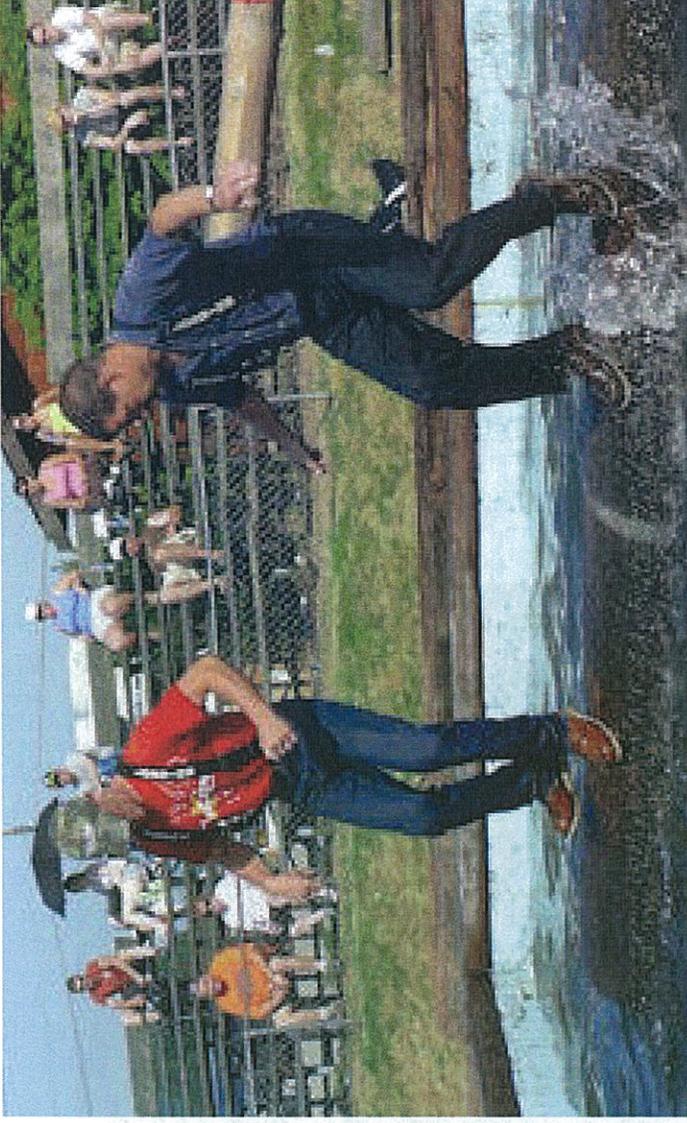
Shady outdoor bar and terrace

more formal and another trendier and less formal section.

The *more formal area* is clustered around the southeast corner where the block is designated for a high-rise hotel. This zone could potentially span Eaton Street. This section of the promenade should be clustered white table-cloth restaurant terraces and upscale bars which can have an outdoor presence through the amenities in the park spaces along the ditch as well, such as tented garden patios across the promenade.

An existing stormwater detention pond located in South Park at the intersection with the US 36 trail will be transformed into a small lake providing a unique opportunity and setting for outdoor water views and activities. The north and west sides of the lake would be focused mostly on hotel related uses such as a poolside deck with lounge chairs. The south side of the pond could offer the public an opportunity to sit close to the water and potentially engage in *water activities* - *fishing*, *model boats* and if possible offer more active water uses like small row boats, paddle boats, or kayaks.

The park on this side of the pond should feature *small play elements* (i.e. art, rocks or boulders, sand pit, water play



piece) to attract families, and create a “beach atmosphere” near the pond even if swimming in the pond is not allowed.

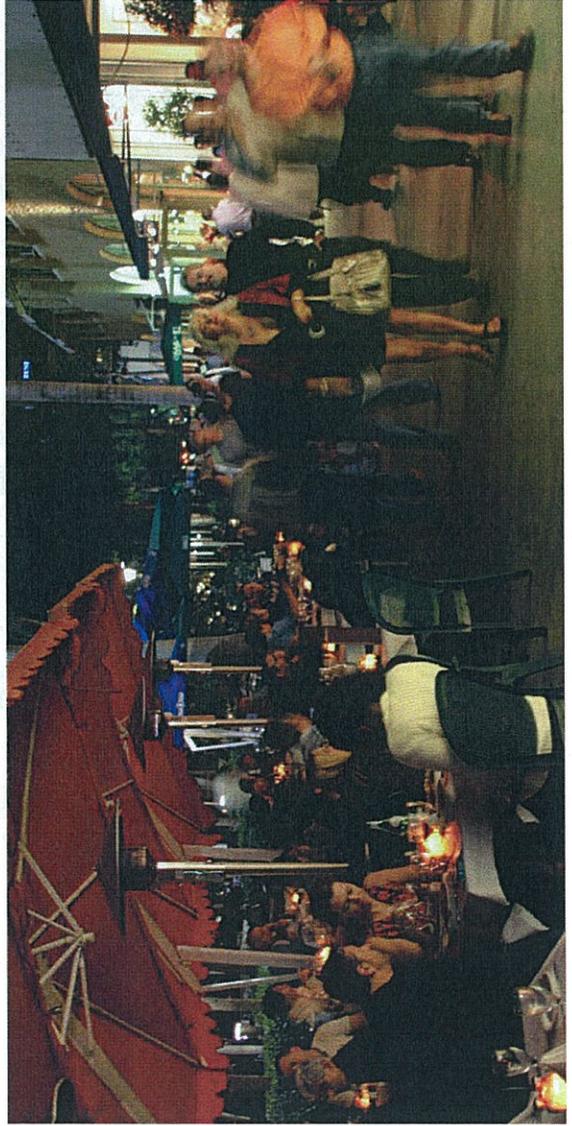
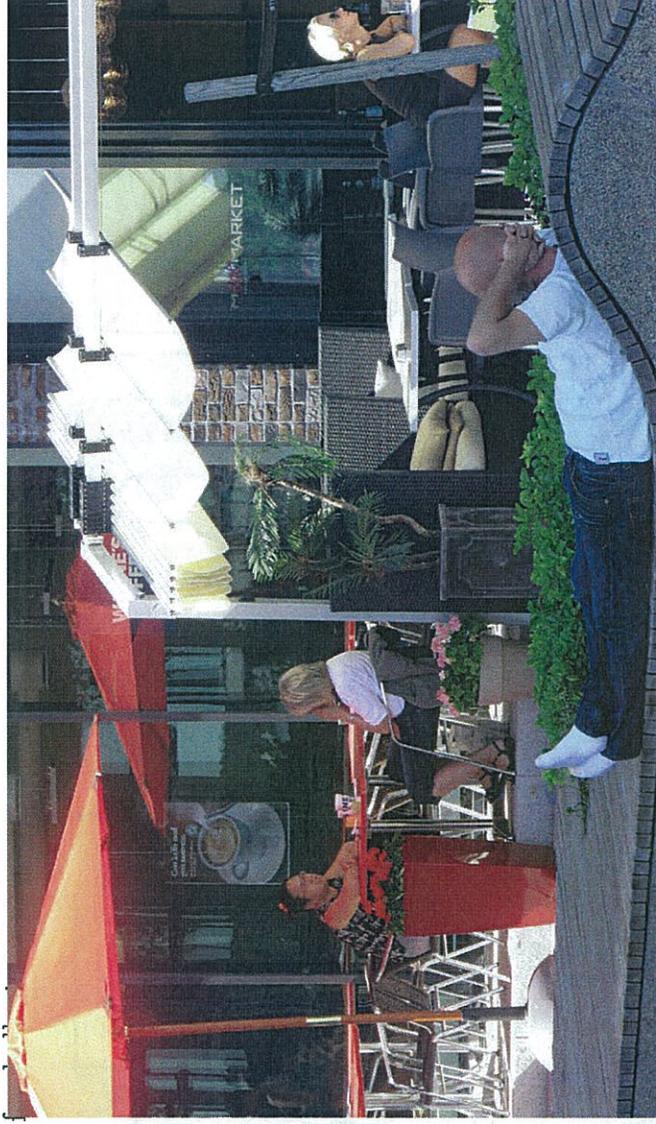
Spaces for picnics in the shade of trees or under umbrellas and *simple games* (badminton, Frisbee, ball play) would support the beach experience and spill it into the park.

Further west along the promenade, the *informal seating in the park* should relate to dining and food options here. Appropriate amenities may include tables, chairs and umbrellas for shade, which should be available for public use,

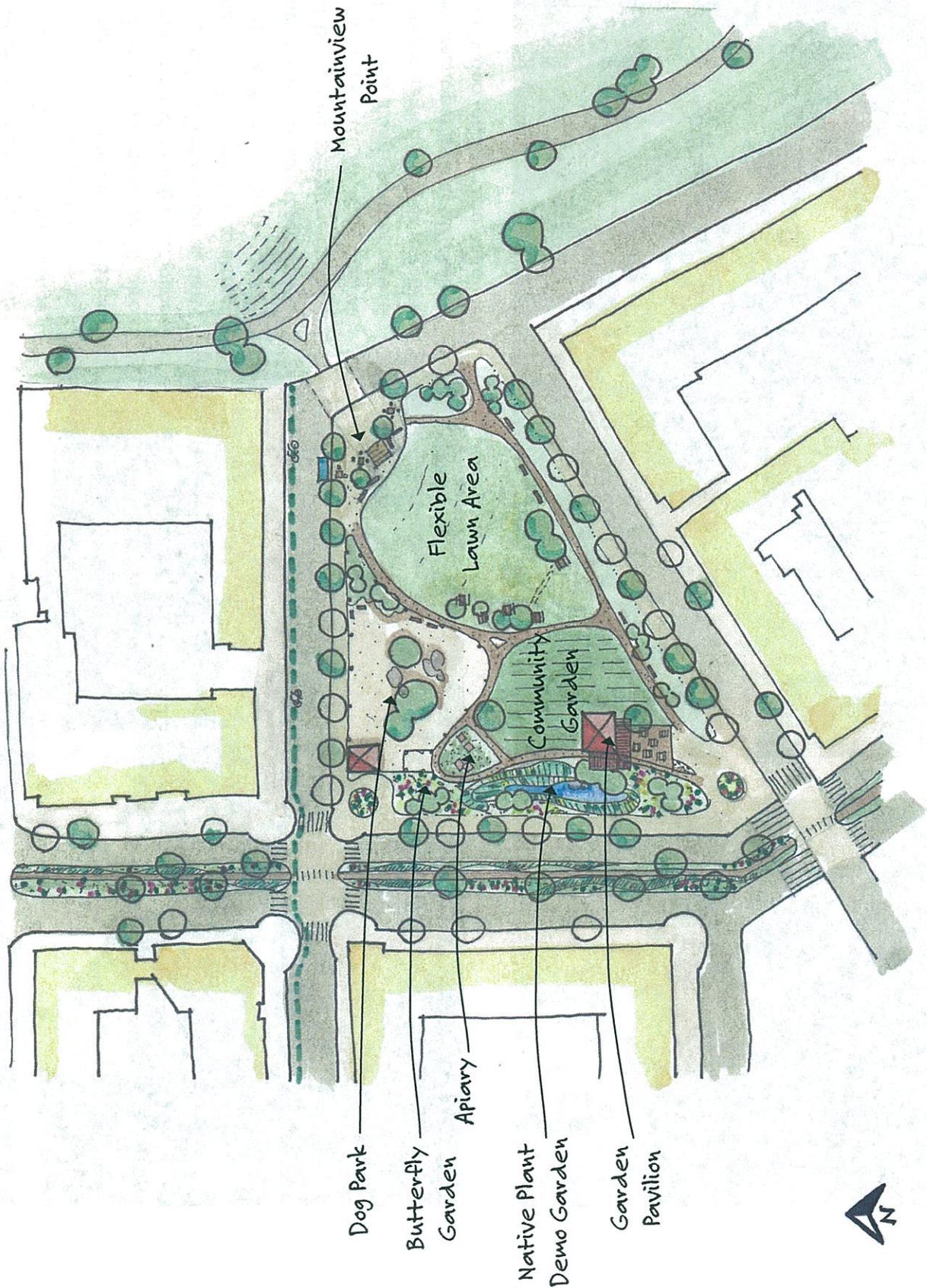
but could be managed by adjacent dining and coffee establishments. This area could also feature *designated lawn game courts* for bocce, bag toss, croquet, badminton, etc. Game sets could be made available at one of the adjacent businesses.

The *less formal zone* of the promenade could form a *beer alley* of sorts, with a substantial *beer garden* located in the plaza at the intersection with Westminster Boulevard. Local breweries, beer pubs, wine bars and other similar establishments should be encouraged to cluster in this area. The park space opposite beer alley

should offer a *relaxed, trendy atmosphere with bar and coffee terraces spanning the promenade, beach chairs or other lounge furniture* (outdoor couches, hammocks, swing benches, large outdoor bean bags, etc.). This area of the park could also feature *games related to adjacent pubs* or bars like beach volleyball courts, dartboard zones, and other activities to attract a young, hip audience. Teens should also be encouraged to use these space, and should be invited to enjoy lounges, swings, hammocks, etc. At least one of the establishments along the promenade should be teen-oriented such as a coffee shop or ice cream parlor that also offers computer or video games, and outdoor



Outdoor dining, comfortable seating and promenade along commercial storefronts



THE NORTHEAST PARK

While primarily a neighborhood park, Northeast Park, with its beautiful views of the front range and its proximity to Eaton Street, can showcase the community's passion for gardening and sustainable living. Even apartment dwellers now exhibit a strong interest in growing their own vegetables and flowers, so Northeast Park provides the opportunity for community gardening, bee keeping and sharing knowledge about native plants and sustainable best practices. The *community garden* is the focus of the park, where plots can be assigned to local residents with guidelines for maintaining them.

The western edge of the park could feature a *native plant and flower garden*, developed and maintained with the help of the Denver Botanical Garden and the Butterfly Pavilion. Low-water and low-maintenance plants could be showcased here. An *open-sided pavilion* with a patio adjacent to the community garden



Floral exhibition

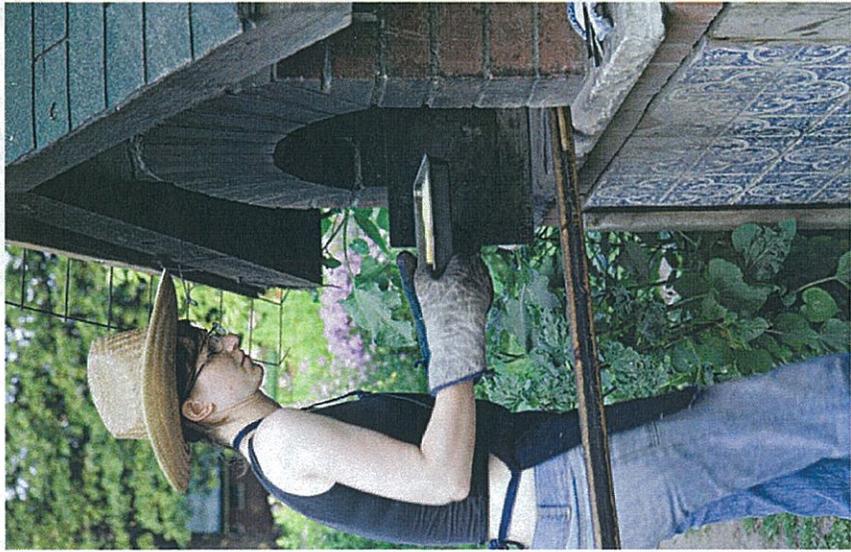
offers space for an outdoor classroom and demonstration center for environmental education: classes in composting, gardening, recycling and even cooking demonstrations.

Since the park is situated across from US 36 trail, the northeast corner offers an important entranceway, with scenic views, for bike riders and pedestrians. A *small*

gateway plaza with a sculptural element that frames the view would provide a great place for wedding photo ops and small gatherings to watch the sun set. A local bike shop could set up a portable bike rental tent or trailer here, and food trucks and vendors can provide refreshments to weekend bicycle enthusiasts. Other amenities, such as bike racks, benches,

a bike repair station and shade, would make it a welcome stop for riders. A path leads diagonally through the park to the commercial heart of the downtown. An *open lawn area* provides space for neighborhood gatherings, picnics, barbecues and games.

Dog parks in urban areas have become



Outdoor bake oven

Placemaking in Westminster



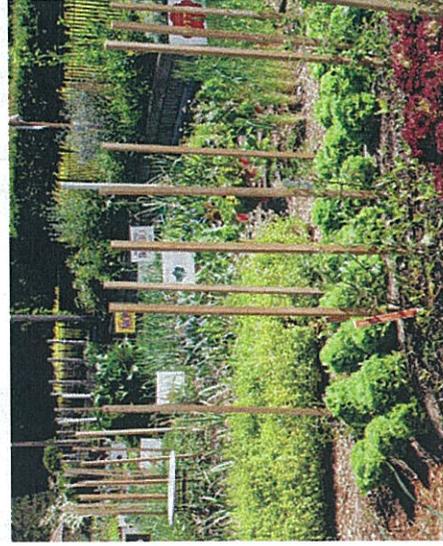
Family garden kitchen

Dog park with seatings for dog owners making it easy to socialize

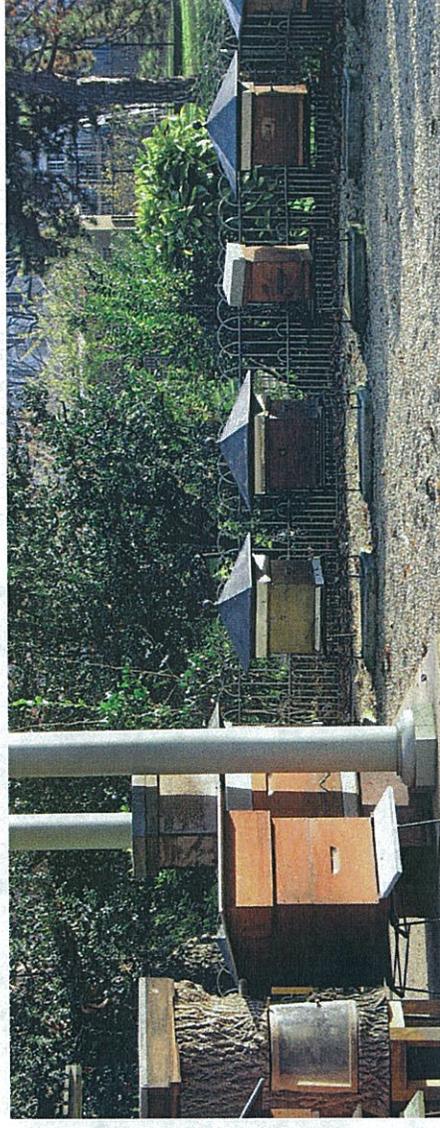


one of the most popular places for people to gather and socialize with their neighbors while their dogs play and socialize as well. A *dog park* in Northeast Park could occupy about $\frac{1}{4}$ acre with boulders and natural planting for climbing and exploring, with water for the dogs and shade for the dogs' owners.

Because more and more suburbanites are discovering bee keeping as a hobby, we suggest an apiary in Northeast Park that could be managed by a group of residents interested in producing and selling honey. Even Luxembourg Gardens, in the center of Paris, boasts an apiary that provides information to the public about bees, their precarious situation and how they make honey.



Vegetable and community garden



Apiary

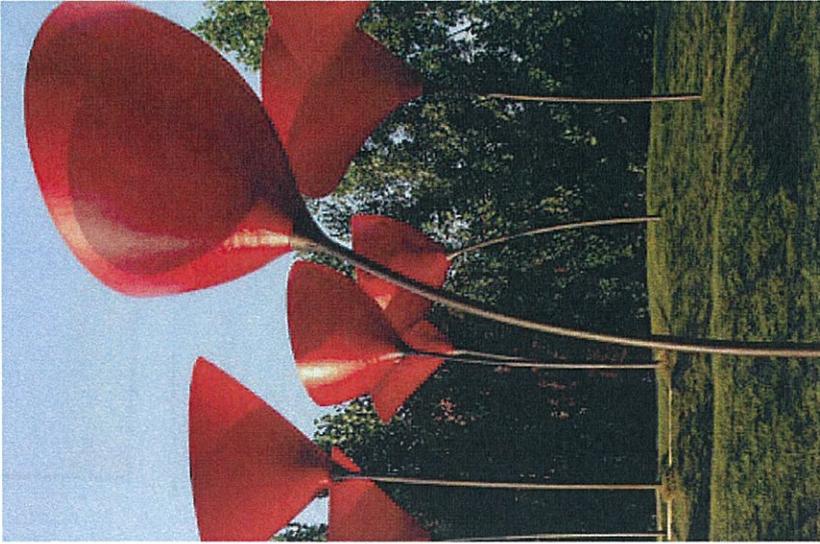
US 36 TRAIL

Route 36, the Federal highway that runs between Denver and Boulder, is being transformed into a highway of the 21st century, with many travel options. Not only is the Colorado Department of Transportation building an HOV lane with Bus Rapid Transit, and a toll for single-occupant cars; CDOT is also offering an alternative to the car by building a bike path along the highway that will connect Denver to Boulder. The City of Westminster rightly views this development as a great boon for its new downtown as the new path will run adjacent to the center and provide a green buffer between the center and the highway. As more and more Denver area residents are eager to commute by bike, the new trail will help reduce car trips from Westminster and become an important connector. In addition, commuters and recreational bike riders will be looking for destinations or stops en route that can provide food, beverages and bike repair facilities. Wayfinding signage directing cyclists into the commercial heart of the



Bike and ped path with greenery, for commute trips and recreation

Art installations to create an identity



downtown will be critical to complete the connection.

The US 36 trail Greenway provides an opportunity to create a green buffer using native plants and trees that will help to screen the views and sounds of the highway and provide a pleasant biking experience. At key intersections, especially at 88th Avenue, B Street, and the northeast corner of Northeast Park and G Street, areas for food kiosks, food trucks, portable

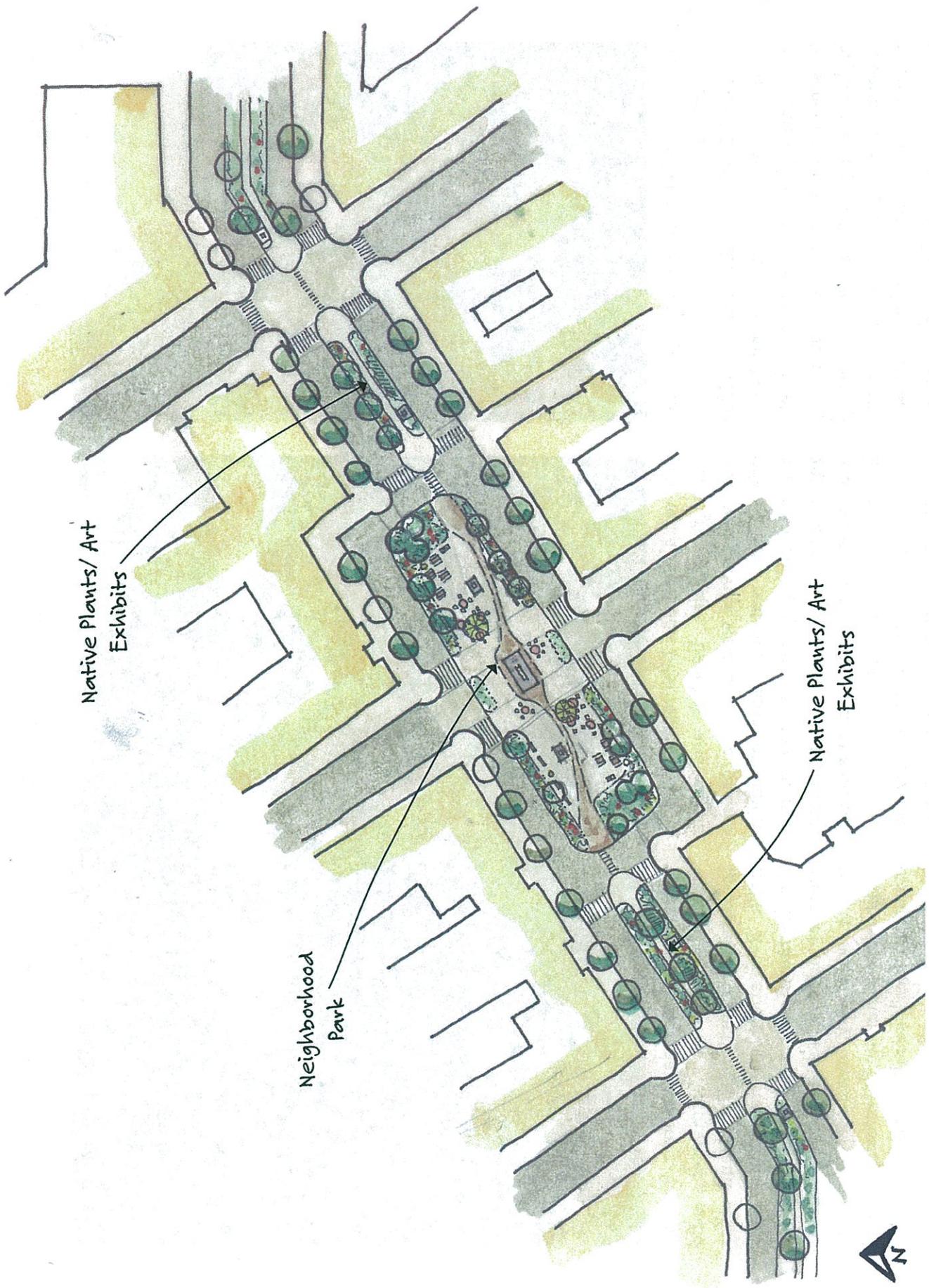
From kid to senior-friendly bike path/trail



bike rental facilities, bike repair stations, waste receptacles, benches and shade trees will provide welcome stops for bike riders. These rest stops/nodes of activity can also be equipped with information and maps of the downtown so that riders who would like to make a longer stop can find cafes and restaurants.

Many towns around the country that have taken advantage of their proximity to biketrailheads have benefited economically

by becoming tourist destinations. Signage within the downtown Westminster should indicate the direction to this and other trails. Recreational bikers can then view the downtown as a jumping off point for regional rides, which will give a boost to the hospitality, restaurant and bike businesses within the downtown. Special events, such as bike rallies and races could kick off here as well.



Native Plants/ Art Exhibits

Neighborhood Park

Native Plants/ Art Exhibits



EATON STREET

Eaton Street in downtown Westminster is reminiscent of the lovely green and shady parkways, such as Monaco Parkway and 17th Avenue, for which Denver is famous. The City of Westminster, however, has the opportunity to design it for more public use by creating a walking path down the center of the median that also provides safe crosswalks at the intersections between the medians. In addition, the City can work with the Denver Botanical

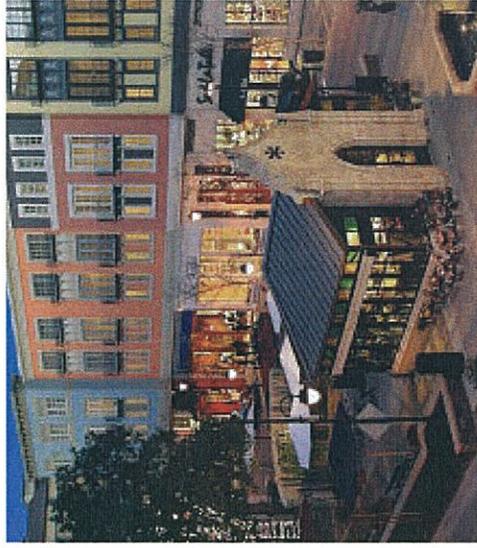
Garden and other horticulture experts to plant native, low-water plants that are both low-maintenance and wildlife-friendly. Thus, the median, like the native garden in Northeast Park, can be a demonstration garden with labels and interpretive information, to guide homeowners in xeriscape and sustainable gardening. We do not recommend that this path be used as a bike path as US 36 trail is just one block away and the walking path will be safer

without bikes, although some sharing should be permissible. Eaton Street medians can be used as an outdoor gallery featuring temporary sculpture shows and art exhibits. In this case, as visitors may want to stroll the path, access to the Boulevard from the Piazza and South Promenade should be indicated with maps and signage.

EATON NEIGHBORHOOD PARK

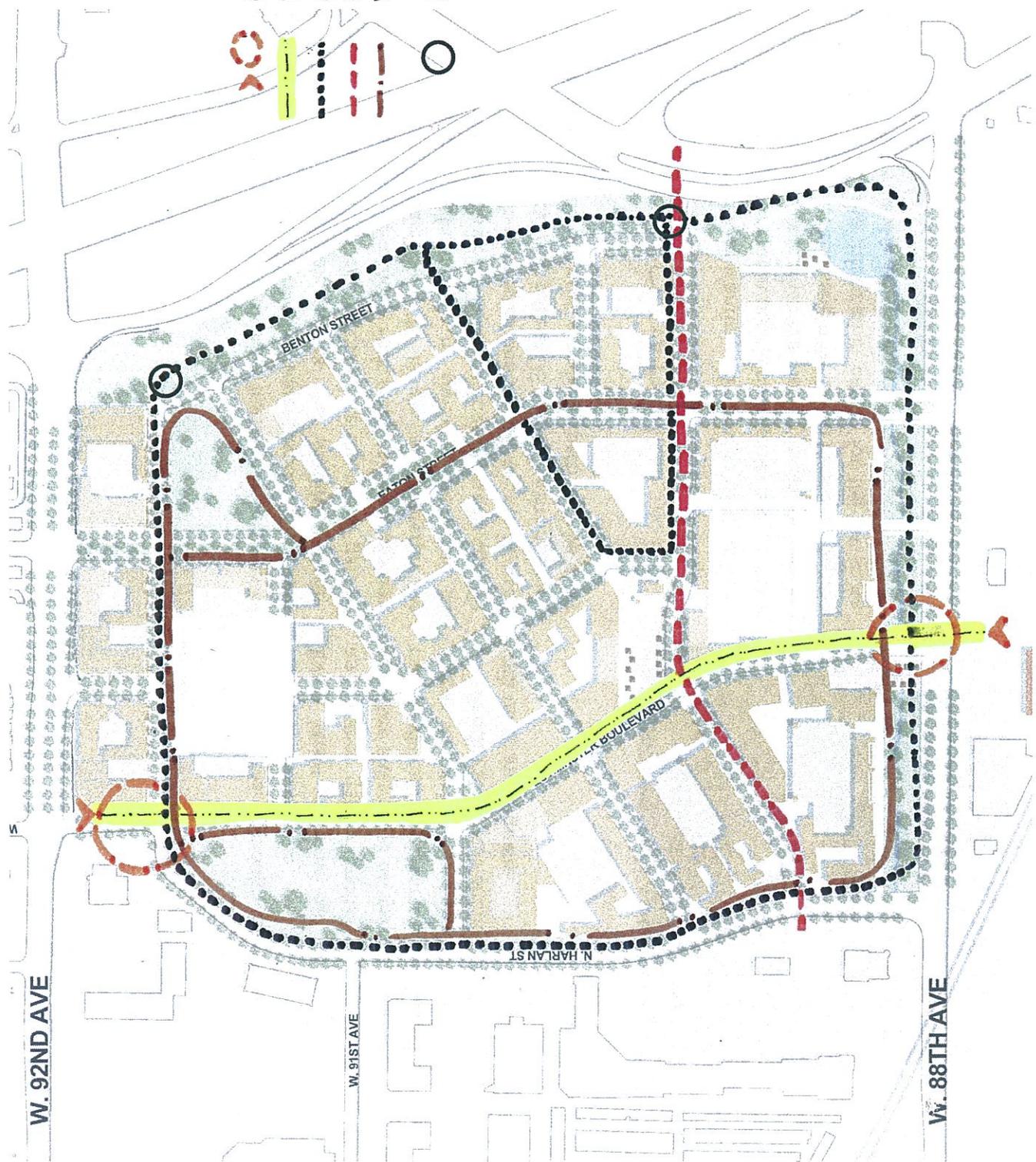
The small park in the wider median along Eaton Street provides the opportunity for a stopping point a green oasis along the walking path on Eaton Street. This seating area should be open to area residents and employees to program themselves with outdoor meetings, lunches, after work wine tasting parties and informal gatherings. Shade, moveable seating and attractive

flower planting will provide the backdrop for community activities. An exception to this is when the median is used to display art and sculpture. Eaton Park can become the information center for the art show, where artists can meet and greet visitors.



Attractive place to create a welcoming gathering spot

- Gateways
- Major Spine
- Class II Bike Lane
- Commercial Corridor
- Walking Trail
- Bike Rest Stop



W. 92ND AVE

W. 91ST AVE

W. 88TH AVE

BENTON STREET

W. 91ST AVE

W. 91ST AVE BOULEVARD

N HARLAN ST

CIRCULATION

Streets as Places

While streets were once places where we stopped for conversation and children played, they have often become the exclusive domain of cars. This is particularly true in Westminster. Even where sidewalks are present along the multi-laned, high-speed streets, they don't always feel hospitable to pedestrians. These kinds of streets are the product of very deliberate choices that have been made to shape our communities around the private automobile. We have the ability to make different choices—starting with the decision to design our streets as comfortable places for people.

Thankfully, the master plan for downtown Westminster depicts a different vision of what transportation can be. Here streets are for people first and downtown streets will be destinations worth visiting, not just thruways to and from the workplace or the home. Neighborhood streets can be places where it will be a delight to walk and interact with neighbors, and commercial streets can be vibrant public spaces that support the ground floor businesses and are destinations in themselves. All the streets will be safe for walking and cycling while allowing both through and local traffic. Pedestrian and bike access to public

transportation will also be promoted: a proposed commuter-rail station on 88th Avenue and the comfortable express RTD buses will make commuting by rail or bus a pleasure.

Perimeter Streets

The streets that serve as the boundaries of downtown Westminster, 88th, 92nd and Harlan Avenues, are overly wide, encouraging fast moving traffic and discouraging pedestrian crossing. In order to integrate the downtown with its surrounding neighborhood, it is imperative that these streets not serve as barriers. Great commercial centers are not only pedestrian friendly within their precincts, but also easily accessible by bike and on foot. All three streets could be put on road diets to reduce the number of traffic lanes and create safer pedestrian and bike access. In addition, the streets can be designed to calm traffic, with planted medians, street trees, curb extensions and active uses on the ground floors or at the gateways to give motorists something to look at and entice them in.

Commercial Streets and Gateways

Downtown Westminster is strategically located on

Westminster Boulevard, a major spine through the city that connects to the Promenade, the Butterfly Pavilion, City Park and the Westin Hotel to the north. Further north it becomes Main Street in Broomfield. It will serve as the commercial Main Street of downtown Westminster Boulevard and the way that most people will enter the commercial district from 92nd and 88th Avenues, as long as activity and signage indicate where to turn. Most visitors should be encouraged to enter on Westminster because that will maximize business exposure and convey the feeling of a vibrant urban neighborhood that will attract them in to shop and dine.

Westminster Boulevard and 89th Avenue, the other main commercial corridor, should be treated differently than the other streets in downtown Westminster. The ground floors within the commercial core should be active with retail, restaurant and service uses that make walking a pleasure. Large, transparent storefronts with attractive, eye-catching displays, facades that open up to the street, outdoor dining, perpendicular signage and sidewalk displays of merchandise will create a street that attracts pedestrians. Most important, streetscape and street trees should not obscure the view of storefronts from the street—trees must be carefully selected, placed

and pruned to maximize visibility. Large planters should be avoided on commercial streets to allow for active uses on the sidewalks, such as dining at the curb, vending and food kiosks, and sidewalk sales and special events. Flexibility, triangulation and visible activity are just as critical on a sidewalk as in any other public space.

As the gateways to downtown Westminster, the intersections at the Westminster Boulevard entrances should not only be well signed, but should have safe and comfortable crosswalks encouraging pedestrian movement. They will be even more effective gateways if they offer views of activity, either at the corners or within a block of the entrance, ground floor uses that mirror the commercial activity further inside (e.g. a small coffee bar with outdoor seating or convenience retail for residents) and attractive planting. The activity of the commercial center should “reach out like an octopus” to the perimeter streets.

Bike Lanes

As a destination for regional bike riders and a jumping-off point for bike enthusiasts, downtown Westminster’s streets will be bike friendly, either with dedicated Class II bike lanes or traffic slow enough to allow for safe shared streets. We recommend a

bike lane along G Street, which forms the northern border of Northwest Park, to link US 36 trail to NorthWest Park and Harlan Street. B Street could be a designated bike route into the commercial area from US 36 Trail. Where these streets intersect with US 36 Trail, nodes should offer rest stops for riders with food, bike rentals, shade, bike racks and repair stations, and signage indicating what the downtown has to offer.

Bike Trails

US 36 Trail and the South Promenade on 88th Avenue will have off-street Class I bikeways that will be dedicated to bike riders. These will connect to other important bike trails in the City and the region.

Walking Trails/Promenades

A walking loop should be designated around the heart of the downtown, not just the perimeter of the new development, to encourage safe recreational walking. Maintaining walking trails and promenades or sidewalks that are separate from dedicated bike trails will protect both walkers and bike riders, although some sharing of trails should not be prohibited. The loop should include a north-south trail along Harlan Street and NorthWest Park connecting to an attractively planted sidewalk (“promenade”) along

the east-west street leading to Northeast Park where it can connect to the median path on Eaton Street. The promenade along the South Promenade will provide the southern link of the walking trail.

The walking trail or promenade should be well-signed with wayfinding signs indicating key destinations and connectors. It should also be equipped with benches in strategic places (accompanied by shade trees and waste receptacles). Most importantly, the walking loop should have safe, and well-signaled or signed crosswalks to encourage pedestrian use. The loop trail could become a destination recreational walk for residents of all ages, but could be particularly attractive to seniors, who often walk inside malls because of the safety and comfort factors.



Proposed concept diagram of short-term LQC uses and activities

LIGHTER, QUICKER, CHEAPER

“Lighter, Quicker, Cheaper” (LQC) describes a moderate cost, high-impact framework for short-term, experimental interventions and events on the site. LQC experiments allow for lower risk, and lower cost improvements to become the launching pad for the development of downtown Westminster. These experiments capitalize on the creative energy of the community and its partners to generate new uses, test ideas, and build a new image for this place in transition.

Experimenting with special events and activities is essential to the LQC approach and can draw upon the large number of stakeholders and partners who expressed an interest and shared their ideas for the public spaces of downtown Westminster. Creating an “interim public space” can provide a boost to the area and build momentum, while fulfilling a real community desire to see the site of the

Westminster Mall come back as a stronger, better place.

Temporary events can take many forms requiring varying degrees of time, money and effort, but the spectrum of interventions should always aim to build lasting change. A great program of events can put downtown Westminster back on the map. When people have positive experiences during the experimental phase, they are likely to return for more, and return regularly, after larger capital improvements have taken place.

Since the beginning of its cooperation with the City of Westminster and its stakeholders PPS has been seeking to develop not only a vision for the long term but also ways to transform the site in the immediate future. A number of focus group discussions and individual interviews explored strategies for immediate use. The ongoing work on the site - construction of the US 36 trail and other infrastructure element - paired with its significant

size, require careful consideration when locating LQC interventions. No matter what their character, they need to provide an exciting, but also pleasant and comfortable experience, and doing that in the middle of a vast construction site can be a real challenge.

Special events and programs should be focused on the areas that can currently offer the best image and easy access that wouldn't require visitors to drive through the entire site. Since JC Penney is still active, using the area around it, and its parking lot as well as spaces along the South Promenade seems to be the best strategy.

NEXT STEPS

The City of Westminster should pursue and further develop some of the ideas discussed in the focus groups with PPS:

Organizing a variety of markets – flea markets, art and craft markets (the Affordable Art Fair was brought as an example), with prepared food and entertainment components.

A food truck rally with comfortable seating and entertainment. While this activity is related to the markets, creating a really pleasant seating area for people to sit, eat and

socialize will be key, and this will require more effort than organizing a market experience. Since food experiences in Westminster currently are somewhat limited, this could be a great way to offer residents more food choices, test the concept of attracting unique local and regional restaurants to downtown Westminster in the long term, and potentially incubate some of these entrepreneurs locally, helping them to grow from a food truck to a brick-and-mortar venue.

A beer festival/temporary beer garden where local breweries are represented. Again this

event would both test the viability of a “beer alley” concept for the South Promenade in the long term and help begin building partnerships with local brewers.

An outdoor movie series potentially staged near the JCPenney and using its wall for projection. JCPenney should be invited to both host and sponsor the events, and screenings could be tied to some of the store’s promotions and sales; for example beginning with their 4th of July sale and ending with their Labor Day sale.

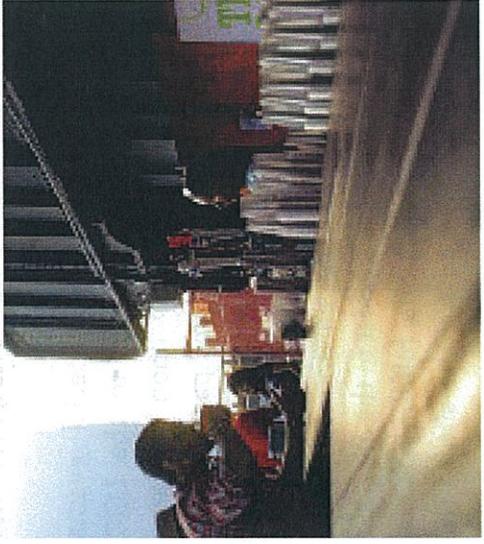


Flea market

Placemaking in Westminster



Food truck rallye



Beer garden

A special themed-art festival curated by the Cherry Creek Arts Festival (CCAF) team. The CCAF team has already expressed its readiness to curate an art festival in Westminster, and the city should pursue discussions with the organization to identify the most relevant theme for this event. The CCAF team felt strongly that a niche theme would be needed to attract people from the entire region since Westminster is not known as an art festival venue. Building off of what is already in Westminster, among the themes mentioned in the brainstorming discussion

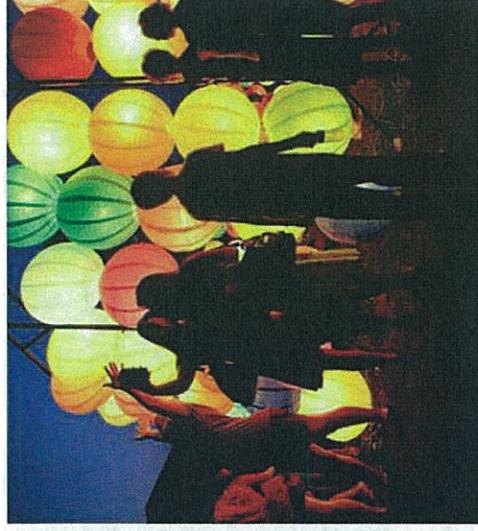
were:

- *Nature and the outdoors, which are such a strong theme for the community - a festival of repurposed art that may include driftwood art, natural art, and objects such as beetle-kill furniture;*
- *Environmental Art Festival;*
- *A bike event like Denver's Tour de Fat with bicycle art such as art bikes, art pieces made with bike parts, gears, chains etc.;*
- *A "West-tech" robot fest/competition or drone festival connecting to the tech industry and techies in the area.*

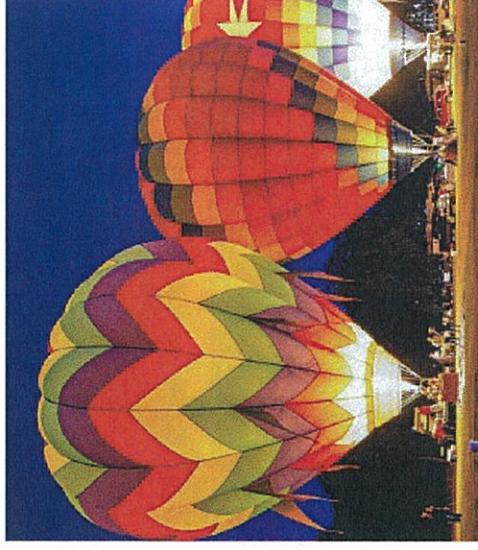
A hot air balloon event or potentially a regularly present hot air balloon operator who could add that experience to other events on the site. Hot air balloons emerged as an important theme from the history of the Westminster Mall. People remembered with nostalgia bringing their children to the mall to watch the balloon display. Re-interpreting this experience, and transforming it into something larger, more exciting and more natural could help set the tone for the new development.



Outdoor projection



Light art installation



Hot air balloon event

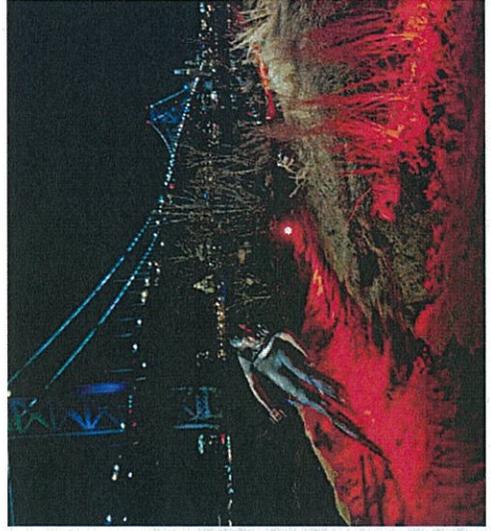
Community gardens - the idea of creating an area on the site where community members could garden, grow food and decorative plants was mentioned in a number of conversations. Gardening could be a great way of engaging local youth, community groups and garden enthusiasts on the site.

Related to the gardening idea was the thought of creating a large pumpkin patch area, which could culminate with a harvest festival.



Community garden
Placemaking in Westminster

Temporary BMX track to attract youth, with a possibility to expand activities with a graffiti wall, rock climbing, and other youth-oriented activities. Since urban adventure and fitness is one of the themes that will be explored in downtown Westminster's public spaces in the long term, it is important to engage local youth in the site early on.



Bike and BMX event

8.2 TRAFFIC STUDY



DOWNTOWN WESTMINSTER PLANNED UNIT DEVELOPMENT

FINAL TRAFFIC ANALYSIS

SUMMARY

The City of Westminster is proposing to create a mixed-use downtown on the site of the former Westminster Mall. The site is located west of the Boulder Turnpike between W 88th and W 92nd Avenues. The purpose of this document is to assess the traffic function of the proposed street grid assuming full build-out of the development program (see below). This study utilizes Synchro software to analyze traffic impacts at the primary site access points along W 88th Avenue and W 92nd Avenue. Furthermore, the study assesses the impacts of the proposed N Harlan Street realignment and reconfiguration at W 92nd Avenue.

VEHICLE TRIPS

Utilizing the Institute of Transportation Engineers (ITE) publication Trip Generation, we have calculated average daily trips and have also begun calculations for PM peak hour trips for a project program of:

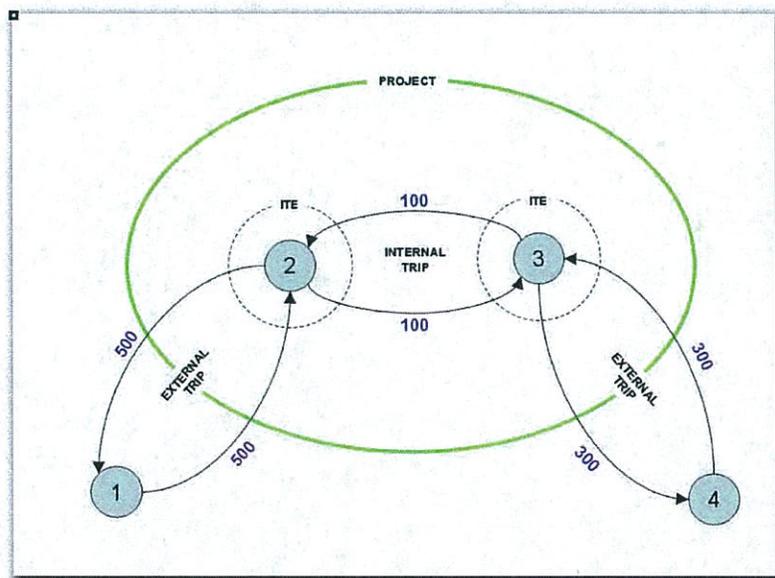
- o 2,000 dwelling units;
- o 1,000,000 sq. ft. of office uses;
- o 740,000 sq. ft. of retail, including 180,000 sq. ft. of existing JC Penney;
- o 280,000 sq. ft. of hotel space; and
- o The existing Brunswick bowling facility of 37,400 sq. ft.

Since the Preliminary Development Plan (PDP) checklist is focused on traffic volume increases, we will at this point limit these calculations to the newly proposed uses and not the JC Penney or Brunswick uses.

TRIP CAPTURE

Mixed-use projects designed in a walkable, bikeable and transit-friendly manner such as Westminster Center generate less traffic than auto-oriented developments.

The diagram here illustrates the concept of a "captured" trip.



Westminster, Colorado, PDP Traffic Analysis

Captured trips include vehicle trips that do not leave the project; vehicle trips that do not occur because they are replaced by walking, bicycling or transit; and trips that do not occur such as a telecommuter working from home.

We have developed in-house methodologies for calculating trip capture using Urbemis and other programs.

Based on current research and the land use mix of the project, we estimate a daily capture rate of 35-percent and a PM peak hour capture rate of 40-percent. Note that we and others have documented daily capture rates of 50-percent and peak hour capture rates of over 60-percent in other cities and mixed-use activity centers, so these initial values are conservative.¹

TRAFFIC

For the above new development, we have refined our prior estimates to reflect a daily net trip generation of approximately 34,520 vehicle trips, evenly split as incoming and outgoing on a daily basis. We also estimate a PM peak hour trip volume of 3,150, with 1,440 inbound and 1,710 outbound.

The baseline turning movement counts utilized the City's Synchro files that were recently completed in accordance with the realignment of Sheridan Boulevard. Since those counts included one center, northerly, entrance, and the two southerly entries, it was assumed that existing traffic accessing the bowling facility and JC Penney were included in those counts.

Comparisons of the sizes of these facilities and their projected rates of trip generation using ITE methodologies showed this to be a reasonable assumption for the Brunswick center, but not for the JC Penney property (unless a significant number of patrons are accessing the store from Harlan, where we do not have traffic counts, except at its northerly and southerly ends).

Therefore, the existing northerly traffic counts were left to account for the Brunswick site, and the JC Penney space was factored up to account for a better-performing future use- which could very well be the JC Penney surrounded by a more vibrant center.

FORMER MALL/AREA TRAFFIC

The now abandoned mall that occupied most of this property was just over a million square feet in size (1,014,504). Using the ITE methodologies, we estimate that the mall, when fully leased and operating, used to generate approximately 43,500 daily trips and 3,410 PM peak hour trips, almost evenly split at 1,670 inbound and 1,740 outbound.

¹ http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_684.pdf
http://www.epa.gov/smartgrowth/mxd_tripgeneration.html

Westminster, Colorado, PDP Traffic Analysis

These comparisons mean that the current development program will distribute approximately 30-percent less daily traffic and 17-percent less PM peak hour traffic than the former mall. These calculations and comparisons will be refined as further trip capture data is developed and actual traffic counts around the former mall are evaluated.

KSS Fuels offers a complete database of U.S. traffic count data through Google Earth Pro, which was used as a source to provide existing and historic 1996 daily traffic data for W 88th Avenue. This data shows that W 88th Avenue had traffic as high as 40,000 vehicles/day, presumably when the Mall was performing well. Today, in 2013, W 88th Avenue has 22,000 to 29,000 vehicles per day currently.

Similarly, Harlan Street presently has approximately 10,000 vehicles/day and W 92nd Avenue ranges from 32,000 just west of the site to 28,000 just east of it.

During the PM peak hour study period, W 92nd Avenue presently has approximately 3,000 vehicles, with a very slightly higher westerly flow. W 88th Avenue has approximately 1,800 vehicles in the same hour, with approximately balanced flows, slightly more eastbound at Harlan Street and slightly more westbound at the former easterly mall entrance. Harlan Street, in contrast has only approximately 600 vehicles in the PM peak hour.

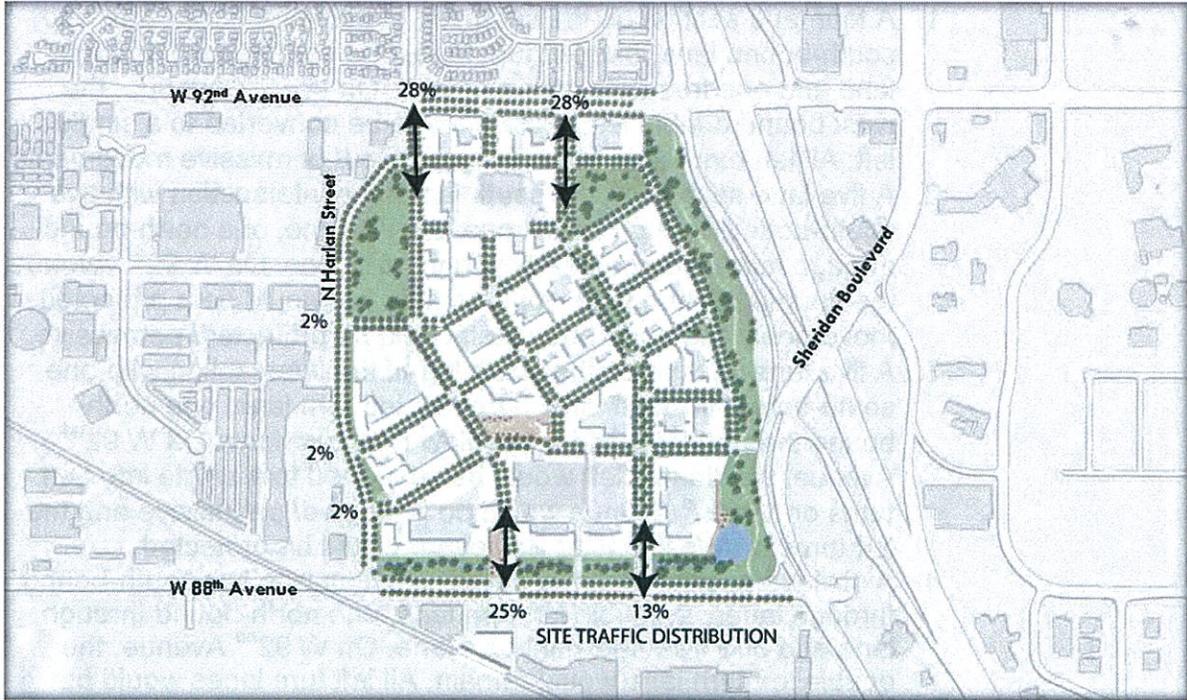
TRAFFIC DISTRIBUTION

Currently, approximately 56-percent of area traffic is on W 92nd Avenue; 11-percent on Harlan Street and the balance of 33-percent on W 88th Avenue. On inspection of the site plan and this information, it was determined to allocate site traffic as 56-percent to W 92nd Avenue, 6-percent to Harlan Street and 38-percent to W 88th Avenue. Part of the rationale for this is that, presently, Harlan Street does not serve much function to the site. The Harlan Street assignment may be low, but this is also conservative in order to test the effects on W 92nd Avenue and W 88th Avenue of higher volumes assigned to those streets.

We also assumed that the site traffic would assume a similar distribution easterly and westerly as currently exists, and therefore split incoming and outbound traffic equally.

Graphically, the following depicts the additional distributions among the primary site driveways.

Westminster, Colorado, PDP Traffic Analysis



The trip generation calculations and distributions are here:

Description / ITE Code	Units	Rate Weekday Daily Traffic	PM Peak Period Rate	% PM In	% PM Out	Expected Units (independent variable)	Calculated Daily Trips	PM Peak Trips - Total	PM In	PM Out	
Residential PLUD 276	DU	7.50	0.62	65%	35%	2000.0	15,000	1,240	806	434	
Hotel 310	Rooms	8.17	0.59	53%	47%	650.0	5,311	384	203	180	
General Office: 710 (Equation)	KSF ²	Equation	Equation	17%	83%	1000.0	7,856	1,100	204	995	
Shopping Center: 820 (Equation)	KSF ²	Equation	Equation	49%	51%	740.0	24,942	2,432	1,192	1,240	
		23-Sep-13		Daily	pkhr		53,108	5,254	2,405	2,850	
			Capture	0.35	0.40		Net Trips	34,520	3,153	1,443	1,710
							88th east	410	188	222	
							88th west	788	361	428	
							Harlan	63	29	34	
							92nd east/west	883	404	479	

ANALYSIS

Synchro traffic software, published by Trafficware LLC (version 8.0, Build 804, revision 795) has been used for the technical analysis that has yielded levels of service and other traffic performance data.

The most recent set of analyses revisited the optimized timing plans, and at the request of Dave Loseman, P.E., L.S., Senior Project Engineer for the City, the following additional testing of the Westminster/W 92nd Avenue intersection was completed:

Westminster, Colorado, PDP Traffic Analysis

1. A four lane section on the south leg of the intersection with one south-bound lane, one left turn lane, one north-bound through lane and one free-flow right turn lane. On W 92nd Avenue, the west bound double left would need to be converted to a single left. All left turn lanes would be protected/ permissive movements.
2. A five lane section on the south leg of the intersection with two south-bound through lanes, one left turn lane, one north-bound through lane and one free-flow right turn lane. On W 92nd Avenue, the double left turn lane would remain but would be a protected movement. The north bound left could be protected/ permissive.
3. A five lane section on the south leg of the intersection with one south-bound through lane, a double left turn lane, one north-bound through lane and a free-flow right turn lane. On W 92nd Avenue, the double left would be converted to a single left. Left turns on W 92nd Avenue would be protected/ permissive and the left turns on Westminster Boulevard would be protected.
4. A six lane section south of the intersection with two south-bound through lanes, a double left turn lane, one north-bound through lane and one free-flow right turn lane. On W 92nd Avenue, the double left turn lane would remain. All left turn lanes would be protected movements.

The above analyses appear in the attached report in their numbered order, at the end of the technical analysis.

With the additional instruction that the volume to capacity ratios (V/C) remain less than 1.0, an additional analysis was conducted with no protected left turns, and only this set of analysis reduced all V/C ratios to less than 1.0. This analysis is contained in the main body of the technical analysis that follows.

Additionally, we added an eastbound on-ramp at the northeast corner of the site. This ramp is not in the City model that was provided during the charrette, and we did not have turning movement counts for it. However, given the City's belief that this ramp accommodates a significant amount of eastbound traffic, we inspected the volumes we did have and settled on 400 vehicles making this turn during the PM peak- this represents approximately 22-percent of eastbound traffic at that point.

Finally, we refined the intersection of Sheridan Boulevard at W 92nd Avenue (that was also helped by the above-referenced ramp). Overall level of service is now D, with both southbound and westbound left turn approaches at LOS F. These turns currently have protected-only phases, if this is changed to permitted/protected, they would improve to LOS D or E- depending on how the phasing is optimized, with no significant overall change to the intersection, which would remain at LOS D.

Westminster, Colorado, PDP Traffic Analysis

Synchro files are also included with the prior submission. Files #1-#4 should be inspected for Westminster at 92nd variations only. File #5 contains all of the above-referenced refinements.

PREPARATION

This report has been prepared by the undersigned, a licensed Colorado Professional Engineer.



Chester "Rick" Chellman, P.E.





Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓↓↓		
Volume (vph)	1415	400	0	1590	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		325	0		0	0
Storage Lanes		1	0		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	0.91	1.00	1.00	0.86	1.00	1.00
Fr't		0.850				
Flt Protected						
Satd. Flow (prot)	5085	1583	0	6408	0	0
Flt Permitted						
Satd. Flow (perm)	5085	1583	0	6408	0	0
Link Speed (mph)	30			35	30	
Link Distance (ft)	549			303	845	
Travel Time (s)	12.5			5.9	19.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1538	435	0	1728	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1538	435	0	1728	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	24			24	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 30.7% ICU Level of Service A
 Analysis Period (min) 15

Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	880	0	0	957	114	0	0	0	136	0	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	313		0	100		0	0		0	150		265
Storage Lanes	2		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt					0.984						0.850	0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	3433	3539	0	1863	5004	0	0	1863	0	1770	1504	1504
Flt Permitted	0.950									0.417		
Satd. Flow (perm)	3433	3539	0	1863	5004	0	0	1863	0	777	1504	1504
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					23						232	232
Link Speed (mph)		40			40			15			30	
Link Distance (ft)		972			103			243			409	
Travel Time (s)		16.6			1.8			11.0			9.3	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	926	0	0	1007	120	0	0	0	143	0	228
Shared Lane Traffic (%)												50%
Lane Group Flow (vph)	207	926	0	0	1127	0	0	0	0	143	114	114
Enter Blocked Intersection	No	No	No	No	No							
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	1
Detector Template	Left	Thru		Left	Thru		Thru		Left	Thru	Right	
Leading Detector (ft)	20	30		20	30		50	30		20	30	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	30		20	30		50	30		20	30	20
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA		Perm			pm+pt	NA	Perm
Protected Phases	5	2		1	6			8		7	4	
Permitted Phases							8			4		4
Detector Phase	5	2		1	6		8	8		7	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0		4.0	4.0		4.0	4.0	4.0
Minimum Split (s)	9.5	24.0		9.0	28.0		29.4	29.4		9.0	29.4	29.4
Total Split (s)	17.0	49.6		9.0	41.6		29.4	29.4		12.0	41.4	41.4
Total Split (%)	17.0%	49.6%		9.0%	41.6%		29.4%	29.4%		12.0%	41.4%	41.4%

Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	900	81	188	977	10	84	0	152	10	10	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	170		0	180		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00			1.00			0.99			0.99	
Flt		0.988			0.998			0.913			0.955	
Flt Protected	0.950			0.950				0.983			0.984	
Satd. Flow (prot)	1770	3487	0	1770	5073	0	0	1653	0	0	1740	0
Flt Permitted	0.260			0.152				0.874			0.887	
Satd. Flow (perm)	483	3487	0	283	5073	0	0	1467	0	0	1567	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12			3			93			11	
Link Speed (mph)		40			40			30			15	
Link Distance (ft)		231			972			786			243	
Travel Time (s)		3.9			16.6			17.9			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	11	957	86	200	1039	11	89	0	162	11	11	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	1043	0	200	1050	0	0	251	0	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru		Left	Thru			Thru			Thru	
Leading Detector (ft)	20	30		20	30		50	30		50	30	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	30		20	30		50	30		50	30	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		2		1	6			4			4	
Permitted Phases	2			6			4			4		
Detector Phase	2	2		1	6		4	4		4	4	
Switch Phase												
Minimum Initial (s)	20.0	20.0		4.0	20.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	25.7	25.7		8.0	25.7		33.6	33.6		33.6	33.6	

Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	851	39	71	900	181	59	0	38	214	10	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		160	400		0	100		0	205		205
Storage Lanes	1		1	1		0	1		0	2		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	1.00	1.00	0.97	1.00	1.00
Ped Bike Factor							1.00	0.98		0.99	0.98	
Frt			0.850		0.975			0.850			0.857	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	4958	0	1770	1556	0	3433	1570	0
Flt Permitted	0.107			0.266			0.496			0.706		
Satd. Flow (perm)	199	5085	1583	495	4958	0	921	1556	0	2538	1570	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			243		45			219			235	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		597			704			312			526	
Travel Time (s)		10.2			12.0			7.1			12.0	
Confl. Peds. (#/hr)							5		5	5		5
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	198	935	43	78	989	199	65	0	42	235	11	235
Shared Lane Traffic (%)												
Lane Group Flow (vph)	198	935	43	78	1188	0	65	42	0	235	246	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	30	20	20	30		20	30		20	30	
Trailing Detector (ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0		0	0	
Detector 1 Size(ft)	20	30	20	20	30		20	30		20	30	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA	Free	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	15.0		4.0	15.0		5.0	6.0		5.0	6.0	
Minimum Split (s)	8.0	25.5		8.0	25.5		10.0	33.5		10.0	33.5	

Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1313	287	366	1420	169	326	111	388	122	116	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145		75	265		0	200		230	135		190
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.98			0.96	1.00					0.99
Fr _t			0.850			0.850			0.850			0.938
Fl _t Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	1863	1583	1770	1733	0
Fl _t Permitted	0.138			0.097			0.209			0.681		
Satd. Flow (perm)	257	5085	1548	351	5085	1524	752	1863	1583	1269	1733	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			266			174			326			27
Link Speed (mph)		40			40			35				30
Link Distance (ft)		599			846			336				484
Travel Time (s)		10.2			14.4			6.5				11.0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	123	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	210	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			24			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	
Detector 1 Type	CI+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	6.0	6.0	5.0	6.0	
Minimum Split (s)	9.0	23.1		10.0	23.1	23.1	9.5	36.6	36.6	9.0	30.6	

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↙	↑↑	↙	↗
Volume (vph)	1595	64	158	1700	81	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		140	190		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			50		50	
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Ped Bike Factor						0.98
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	1770	1583
Flt Permitted			0.089		0.950	
Satd. Flow (perm)	3539	1583	166	3539	1770	1551
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		37				178
Link Speed (mph)	40			40	25	
Link Distance (ft)	365			267	225	
Travel Time (s)	6.2			4.6	6.1	
Confl. Peds. (#/hr)						5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1679	67	166	1789	85	180
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1679	67	166	1789	85	180
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1	1	1
Detector Template	Thru	Right	Left	Thru	Left	Right
Leading Detector (ft)	30	20	20	30	20	20
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	30	20	20	30	20	20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	NA	Perm	pm+pt	NA	NA	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	10.0	10.0	4.0	10.0	4.0	4.0
Minimum Split (s)	21.7	21.7	8.0	20.7	27.6	27.6

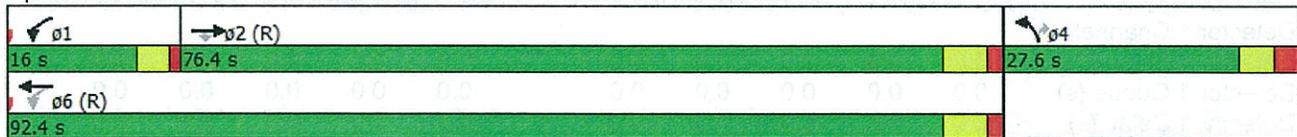


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Total Split (s)	76.4	76.4	16.0	92.4	27.6	27.6
Total Split (%)	63.7%	63.7%	13.3%	77.0%	23.0%	23.0%
Maximum Green (s)	70.7	70.7	12.0	86.7	21.9	21.9
Yellow Time (s)	4.1	4.1	3.0	4.1	3.3	3.3
All-Red Time (s)	1.6	1.6	1.0	1.6	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	5.7	4.0	5.7	5.7	5.7
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Recall Mode	C-Max	C-Max	None	C-Max	None	None
Walk Time (s)	4.0	4.0		4.0	4.0	4.0
Flash Dont Walk (s)	12.0	12.0		10.0	17.0	17.0
Pedestrian Calls (#/hr)	5	5		5	5	5
Act Effct Green (s)	83.5	83.5	98.8	97.1	11.5	11.5
Actuated g/C Ratio	0.70	0.70	0.82	0.81	0.10	0.10
v/c Ratio	0.68	0.06	0.63	0.62	0.50	0.58
Control Delay	13.8	4.4	35.6	6.9	60.2	14.9
Queue Delay	0.0	0.0	0.0	1.0	0.0	0.0
Total Delay	13.8	4.4	35.6	7.8	60.2	14.9
LOS	B	A	D	A	E	B
Approach Delay	13.4			10.2	29.4	
Approach LOS	B			B	C	

Intersection Summary

Area Type: Other
 Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 12.9
 Intersection LOS: B
 Intersection Capacity Utilization 72.2%
 ICU Level of Service C
 Analysis Period (min) 15
 Description: Westminster Signal

Splits and Phases: 1512: Marshall Pl. / 6400 West & W. 92nd Ave.



Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	1573	214	257	1703	42	239	10	240	26	10	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	155		0	375		0	125		75	80		0
Storage Lanes	1		1	2		0	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00				1.00							
Frt			0.850		0.996				0.850		0.915	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	6377	0	1770	1863	1583	1770	1704	0
Flt Permitted	0.950			0.950			0.594			0.751		
Satd. Flow (perm)	1767	5085	1583	3433	6377	0	1106	1863	1583	1399	1704	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203		5				213		13	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		846			549			666			302	
Travel Time (s)		16.5			10.7			18.2			8.2	
Confl. Peds. (#/hr)	5					5						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	37	1622	221	265	1756	43	246	10	247	27	10	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	1622	221	265	1799	0	246	10	247	27	23	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30		20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30		20	30	20	20	30	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2				8		8	4		
Detector Phase	5	2	2	1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	4.0	12.0	12.0	4.0	15.0		4.0	5.0	5.0	4.0	5.0	
Minimum Split (s)	8.5	22.9	22.9	8.5	22.9		8.5	38.6	38.6	8.5	36.6	

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	11.3	53.4	53.4	17.0	59.1		13.0	41.1	41.1	8.5	36.6	
Total Split (%)	9.4%	44.5%	44.5%	14.2%	49.3%		10.8%	34.3%	34.3%	7.1%	30.5%	
Maximum Green (s)	6.8	47.5	47.5	12.5	53.2		8.5	34.5	34.5	4.0	30.0	
Yellow Time (s)	3.0	4.3	4.3	3.0	4.3		3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.5	1.6	1.6	1.5	1.6		1.5	3.0	3.0	1.5	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	5.9	5.9	4.5	5.9		4.5	6.6	6.6	4.5	6.6	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	Max	Max	None	None	
Walk Time (s)		4.0	4.0		4.0			10.0	10.0		4.0	
Flash Dont Walk (s)		13.0	13.0		13.0			16.0	16.0		26.0	
Pedestrian Calls (#/hr)		5	5		5			5	5		5	
Act Effct Green (s)	6.1	51.5	51.5	11.9	61.1		41.7	34.5	34.5	23.3	20.0	
Actuated g/C Ratio	0.05	0.43	0.43	0.10	0.51		0.35	0.29	0.29	0.19	0.17	
v/c Ratio	0.41	0.74	0.28	0.78	0.55		0.50	0.02	0.41	0.10	0.08	
Control Delay	63.7	28.5	8.1	69.1	22.3		33.6	30.9	8.9	27.7	21.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	63.7	28.5	8.1	69.1	22.3		33.6	30.9	8.9	27.7	21.8	
LOS	E	C	A	E	C		C	C	A	C	C	
Approach Delay		26.8			28.3			21.4			25.0	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 26.9

Intersection LOS: C

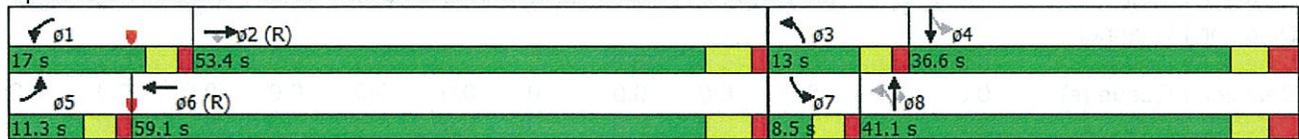
Intersection Capacity Utilization 71.8%

ICU Level of Service C

Analysis Period (min) 15

Description: Westminster Signal

Splits and Phases: 1516: Eaton/Benton St./5800 West & W. 92nd Ave.



Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	1020	258	40	795	68	481	119	64	86	71	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		0	145		30	252		0	285		190
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98	0.99		
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	1770	5085	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.275			0.183			0.492			0.671		
Satd. Flow (perm)	512	3539	1553	341	5085	1583	1778	1863	1555	1243	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			289			151			103			148
Link Speed (mph)		35			35			25				30
Link Distance (ft)		737			576			331				435
Travel Time (s)		14.4			11.2			9.0				9.9
Confl. Peds. (#/hr)			5	5					5	5		
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	85	1159	293	45	903	77	547	135	73	98	81	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	1159	293	45	903	77	547	135	73	98	81	25
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		24			24			24			15	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right									
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	20
Detector 1 Type	CI+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	Perm									
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0	15.0	4.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	8.0	30.3	30.3	8.0	45.0	45.0	9.0	35.6	35.6	8.0	35.6	35.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	10.0	60.4	60.4	8.0	58.4	58.4	16.0	42.6	42.6	9.0	35.6	35.6
Total Split (%)	8.3%	50.3%	50.3%	6.7%	48.7%	48.7%	13.3%	35.5%	35.5%	7.5%	29.7%	29.7%
Maximum Green (s)	6.0	54.1	54.1	4.0	52.1	52.1	11.0	36.0	36.0	5.0	29.0	29.0
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.2	3.2	3.0	3.2	3.2
All-Red Time (s)	1.0	2.3	2.3	1.0	2.3	2.3	2.0	3.4	3.4	1.0	3.4	3.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.3	6.3	4.0	6.3	6.3	5.0	6.6	6.6	4.0	6.6	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0
Flash Dont Walk (s)		20.0	20.0		20.0	20.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		5	5		5	5		5	5		5	5
Act Effct Green (s)	80.0	73.0	73.0	76.9	71.4	71.4	29.3	18.7	18.7	18.7	12.8	12.8
Actuated g/C Ratio	0.67	0.61	0.61	0.64	0.60	0.60	0.24	0.16	0.16	0.16	0.11	0.11
v/c Ratio	0.21	0.54	0.28	0.17	0.30	0.08	0.90	0.47	0.22	0.46	0.41	0.08
Control Delay	10.3	21.3	4.7	10.5	14.1	0.1	60.0	48.9	4.0	42.8	53.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.3	21.3	4.7	10.5	14.1	0.1	60.0	48.9	4.0	42.8	53.6	0.5
LOS	B	C	A	B	B	A	E	D	A	D	D	A
Approach Delay		17.5			12.9			52.6			41.9	
Approach LOS		B			B			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 25.1

Intersection LOS: C

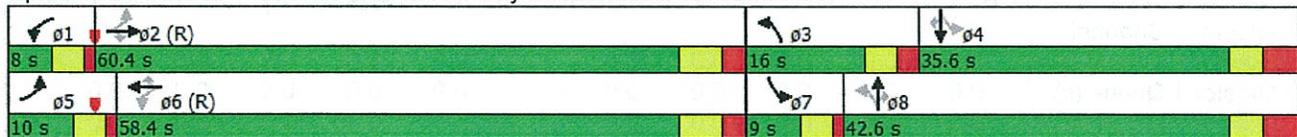
Intersection Capacity Utilization 66.6%

ICU Level of Service C

Analysis Period (min) 15

Description: Westminster Signal

Splits and Phases: 1517: Yates St./W. City Center Dr. & W. 92nd Ave.



Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	26	456	49	55	78	400	864	10	31	805	685
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	295		0	220		0
Storage Lanes	1		1	1		0	2		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	1.00			0.99		1.00		0.99	1.00		0.99
Frt			0.850		0.912				0.850			0.850
Flt Protected	0.950	0.956		0.950			0.950			0.950		
Satd. Flow (prot)	1681	1692	1583	1770	1674	0	3433	3539	1583	1770	3539	1583
Flt Permitted	0.950	0.000		0.357			0.950			0.950		
Satd. Flow (perm)	1673	0	1583	665	1674	0	3422	3539	1562	1766	3539	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180		58				286			641
Link Speed (mph)		40			20			40			40	
Link Distance (ft)		878			327			370			939	
Travel Time (s)		15.0			11.1			6.3			16.0	
Confl. Peds. (#/hr)	5					5	8		6	6		8
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	612	27	465	50	56	80	408	882	10	32	821	699
Shared Lane Traffic (%)	48%											
Lane Group Flow (vph)	318	321	465	50	136	0	408	882	10	32	821	699
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1		1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	30	20	20	30		20	30	20	20	30	20
Trailing Detector (ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	30	20	20	30		20	30	20	20	30	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	pm+ov	Perm	NA		Prot	NA	Free	Prot	NA	Free
Protected Phases	3	8	1		4		1	6		5	2	
Permitted Phases			8	4					Free			Free
Detector Phase	3	8	1	4	4		1	6		5	2	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0		6.0	8.0		5.0	8.0	
Minimum Split (s)	12.5	29.5	12.0	13.4	13.4		12.0	29.7		11.0	29.7	

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	29.5	29.5	19.0	16.0	16.0		19.0	43.5		11.0	35.5	
Total Split (%)	29.5%	29.5%	19.0%	16.0%	16.0%		19.0%	43.5%		11.0%	35.5%	
Maximum Green (s)	23.0	23.0	14.0	9.5	9.5		14.0	36.8		6.5	28.8	
Yellow Time (s)	3.6	3.6	3.0	3.6	3.6		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.9	2.9	2.0	2.9	2.9		2.0	2.4		1.5	2.4	
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4		-1.0	-2.4		0.0	-2.4	
Total Lost Time (s)	4.1	4.1	2.6	4.1	4.1		4.0	4.3		4.5	4.3	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	Max	None	None	None		None	C-Max		None	C-Max	
Walk Time (s)		4.0						4.0			4.0	
Flash Dont Walk (s)		19.0						19.0			19.0	
Pedestrian Calls (#/hr)		5						6			8	
Act Effct Green (s)	26.1	26.1	46.2	11.2	11.2		14.6	43.7	100.0	5.9	31.6	100.0
Actuated g/C Ratio	0.26	0.26	0.46	0.11	0.11		0.15	0.44	1.00	0.06	0.32	1.00
v/c Ratio	0.73	0.73	0.56	0.68	0.57		0.82	0.57	0.01	0.31	0.73	0.45
Control Delay	26.0	26.1	6.1	84.1	34.4		55.5	23.9	0.0	59.9	25.5	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	26.1	6.1	84.1	34.4		55.5	23.9	0.0	59.9	25.5	0.8
LOS	C	C	A	F	C		E	C	A	E	C	A
Approach Delay		17.7			47.7			33.6			15.1	
Approach LOS		B			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 56 (56%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 72.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1545: Sheridan Blvd & 88th Ave.



Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	550	800	75	398	782	184	200	1485	415	189	807	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	280		0	425		0	0		315
Storage Lanes	2		1	2		1	2		1	2		1
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	0.97	0.95	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Ped Bike Factor			0.99	1.00								
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3539	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	3539	1562	3426	5085	1583	3433	5085	1583	3433	5085	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			301			301			301			558
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		649			737			426			484	
Travel Time (s)		12.6			14.4			7.3			9.4	
Confl. Peds. (#/hr)			5	5								
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	579	842	79	419	823	194	211	1563	437	199	849	558
Shared Lane Traffic (%)												
Lane Group Flow (vph)	579	842	79	419	823	194	211	1563	437	199	849	558
Enter Blocked Intersection	No	No	No	No	No							
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free	Prot	NA	Free
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases			Free			Free			Free			Free
Detector Phase	7	4		3	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	15.0		7.0	15.0	
Minimum Split (s)	10.0	34.7		10.0	34.7		9.5	32.6		11.5	32.6	

Westminster Center
5th Westminster/92nd scenario

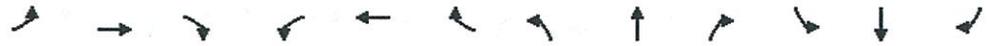
Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	150	301	0	0	0	0	997	401	155	1371	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	270		270	0		0	0		655	0		0
Storage Lanes	2		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor			0.99									
Fr t			0.850						0.850			
Flt Protected	0.950									0.950		
Satd. Flow (prot)	3433	3539	1583	0	0	0	0	3539	1583	1770	3539	0
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	3433	3539	1560	0	0	0	0	3539	1583	1770	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			199						304			
Link Speed (mph)		30			40			40			35	
Link Distance (ft)		693			729			939			845	
Travel Time (s)		15.8			12.4			16.0			16.5	
Confl. Peds. (#/hr)			10	10								
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	103	170	342	0	0	0	0	1133	456	176	1558	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	170	342	0	0	0	0	1133	456	176	1558	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1					1	1	1	1	
Detector Template	Left	Thru	Right					Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20					30	20	20	30	
Trailing Detector (ft)	0	0	0					0	0	0	0	
Detector 1 Position(ft)	0	0	0					0	0	0	0	
Detector 1 Size(ft)	20	30	20					30	20	20	30	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0	0.0	0.0	0.0	
Turn Type	Split	NA	Free					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			Free						2			
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0						10.0	10.0	6.0	10.0	
Minimum Split (s)	13.1	13.1						17.7	17.7	11.2	17.7	

Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	404	196	457	165	964	0	0	953	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	420		330	290		0	215		0
Storage Lanes	0		0	2		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.91	1.00
Fr _t						0.850						0.850
Fl _t Protected				0.950			0.950					
Satd. Flow (prot)	0	0	0	3433	3539	1583	1770	3539	0	0	5085	1583
Fl _t Permitted				0.950			0.950					
Satd. Flow (perm)	0	0	0	3433	3539	1583	1770	3539	0	0	5085	1583
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)						424						222
Link Speed (mph)		40			30			35			35	
Link Distance (ft)		484			716			845			56	
Travel Time (s)		8.3			16.3			16.5			1.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	416	202	471	170	994	0	0	982	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	416	202	471	170	994	0	0	982	222
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors				1	1	1	1	1			1	1
Detector Template				Left	Thru	Right	Left	Thru			Thru	Right
Leading Detector (ft)				20	30	20	20	30			30	20
Trailing Detector (ft)				0	0	0	0	0			0	0
Detector 1 Position(ft)				0	0	0	0	0			0	0
Detector 1 Size(ft)				20	30	20	20	30			30	20
Detector 1 Type				CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Turn Type				Split	NA	Free	Prot	NA			NA	Perm
Protected Phases				4	4		1	6			2	
Permitted Phases						Free						2
Detector Phase				4	4		1	6			2	2
Switch Phase												
Minimum Initial (s)				6.0	6.0		5.0	10.0			10.0	10.0
Minimum Split (s)				28.1	28.1		9.7	20.9			43.0	43.0
Total Split (s)				30.0	30.0		24.0	70.0			46.0	46.0
Total Split (%)				30.0%	30.0%		24.0%	70.0%			46.0%	46.0%

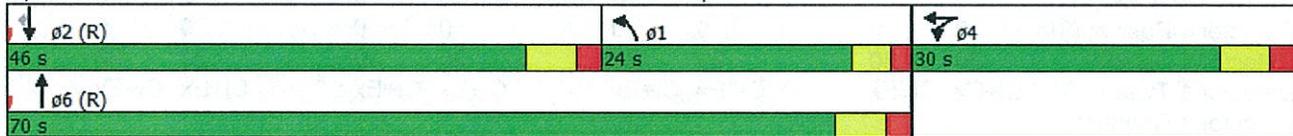


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)				23.9	23.9		19.3	64.1			40.1	40.1
Yellow Time (s)				3.8	3.8		3.0	3.9			3.9	3.9
All-Red Time (s)				2.3	2.3		1.7	2.0			2.0	2.0
Lost Time Adjust (s)				-2.1	-2.1		-0.7	-1.8			-1.8	-1.8
Total Lost Time (s)				4.0	4.0		4.0	4.1			4.1	4.1
Lead/Lag							Lag				Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	2.0			2.0	2.0
Recall Mode				None	None		None	C-Max			C-Max	C-Max
Walk Time (s)				4.0	4.0			4.0				
Flash Dont Walk (s)				18.0	18.0			11.0				
Pedestrian Calls (#/hr)				5	5			5				
Act Effct Green (s)				19.7	19.7	100.0	20.0	72.2			48.2	48.2
Actuated g/C Ratio				0.20	0.20	1.00	0.20	0.72			0.48	0.48
v/c Ratio				0.61	0.29	0.30	0.48	0.39			0.40	0.25
Control Delay				40.3	34.4	0.5	26.7	3.3			17.8	3.2
Queue Delay				0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay				40.3	34.4	0.5	26.7	3.3			17.8	3.2
LOS				D	C	A	C	A			B	A
Approach Delay					22.0			6.7			15.1	
Approach LOS					C			A			B	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 44 (44%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.4 Intersection LOS: B
 Intersection Capacity Utilization 50.5% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 1551: Sheridan Blvd & US-36 WB Ramp



Westminster Center
5th Westminster/92nd scenario

Future Traffic/Optimized Timings
9/30/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	94	971	0	61	983	94	102	10	36	111	10	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	520		615	150		0	125		100
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99		0.99		
Fr t					0.987			0.882				0.862
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	0	1770	5019	0	1770	1620	0	1770	1606	0
Flt Permitted	0.144			0.209			0.677			0.625		
Satd. Flow (perm)	268	5085	0	389	5019	0	1261	1620	0	1158	1606	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					18			37			114	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		704			878			269			731	
Travel Time (s)		12.0			15.0			6.1			16.6	
Confl. Peds. (#/hr)									5	5		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	97	1001	0	63	1013	97	105	10	37	114	10	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	1001	0	63	1110	0	105	47	0	114	124	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12		12		12
Link Offset(ft)		0			0			0		0		0
Crosswalk Width(ft)		16			16			16		16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left	Thru										
Leading Detector (ft)	20	30		20	30		20	30		20	30	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	30		20	30		20	30		20	30	
Detector 1 Type	CI+Ex	CI+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA										
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	29.2		8.0	26.2		8.0	33.6		8.5	33.4	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	13.0	46.0		9.0	42.0		9.0	34.0		11.0	36.0	
Total Split (%)	13.0%	46.0%		9.0%	42.0%		9.0%	34.0%		11.0%	36.0%	
Maximum Green (s)	9.0	39.8		5.0	35.8		5.0	27.6		6.5	29.6	
Yellow Time (s)	3.0	4.2		3.0	4.2		3.0	3.1		3.0	3.1	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	3.3		1.5	3.3	
Lost Time Adjust (s)	0.0	-1.8		0.0	-1.8		0.0	-2.1		-0.5	-2.1	
Total Lost Time (s)	4.0	4.4		4.0	4.4		4.0	4.3		4.0	4.3	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Recall Mode	None	C-Max		None	C-Max		None	None		None	Max	
Walk Time (s)		4.0			4.0			4.0			4.0	
Flash Dont Walk (s)		19.0			11.0			23.0			23.0	
Pedestrian Calls (#/hr)		5			5			5			5	
Act Effct Green (s)	50.0	43.4		45.6	41.2		30.2	27.6		39.8	33.5	
Actuated g/C Ratio	0.50	0.43		0.46	0.41		0.30	0.28		0.40	0.34	
v/c Ratio	0.40	0.45		0.26	0.53		0.26	0.10		0.21	0.20	
Control Delay	22.8	13.2		13.9	24.9		25.0	11.5		19.8	6.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	22.8	13.2		13.9	24.9		25.0	11.5		19.8	6.7	
LOS	C	B		B	C		C	B		B	A	
Approach Delay		14.0			24.3			20.8			13.0	
Approach LOS		B			C			C			B	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 92 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 18.8 Intersection LOS: B
 Intersection Capacity Utilization 54.0% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 1557: 88th Ave. & Eaton



	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1400	24	40	1590	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		130	170		0	0
Storage Lanes		1	1		0	1
Taper Length (ft)			50		50	
Lane Util. Factor	0.81	1.00	1.00	0.86	1.00	1.00
Frt		0.850				0.865
Flt Protected			0.950			
Satd. Flow (prot)	7544	1583	1770	6408	0	1611
Flt Permitted			0.950			
Satd. Flow (perm)	7544	1583	1770	6408	0	1611
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		25				2
Link Speed (mph)	35			35	25	
Link Distance (ft)	213			649	377	
Travel Time (s)	4.1			12.6	10.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	1443	25	41	1639	0	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1443	25	41	1639	0	42
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			12	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Number of Detectors	1	1	1	1		1
Detector Template	Thru	Right	Left	Thru		Right
Leading Detector (ft)	30	20	20	30		20
Trailing Detector (ft)	0	0	0	0		0
Detector 1 Position(ft)	0	0	0	0		0
Detector 1 Size(ft)	30	20	20	30		20
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0		0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0		0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0		0.0
Turn Type	NA	Perm	Prot	NA		Over
Protected Phases	2		4	6		4
Permitted Phases		2				
Detector Phase	2	2	4	6		4
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0		5.0
Minimum Split (s)	17.7	17.7	11.1	49.0		11.1
Total Split (s)	22.0	22.0	28.0	50.0		28.0
Total Split (%)	44.0%	44.0%	56.0%	100.0%		56.0%

Westminster Center
 First Westminster/92nd scenario

Future Traffic/Optimized Timings
 9/29/2013

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1313	287	366	1420	169	326	111	388	122	116	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145		75	265		0	200		230	135		190
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.98			0.97	1.00					0.99
Frt			0.850			0.850			0.850			0.938
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	1863	1583	1770	1734	0
Flt Permitted	0.160			0.138			0.249			0.681		
Satd. Flow (perm)	298	5085	1548	257	5085	1529	462	1863	1583	1269	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			320			199			413			34
Link Speed (mph)		40			40			35				30
Link Distance (ft)		599			846			336				484
Travel Time (s)		10.2			14.4			6.5				11.0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	123	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	210	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	
Detector 1 Type	CI+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	6.0	6.0	5.0	6.0	
Minimum Split (s)	9.0	23.1		10.0	23.1	23.1	9.5	36.6	36.6	9.0	30.6	

Westminster Center
Second Westminster/92nd scenario

Future Traffic/Optimized Timings
9/29/2013

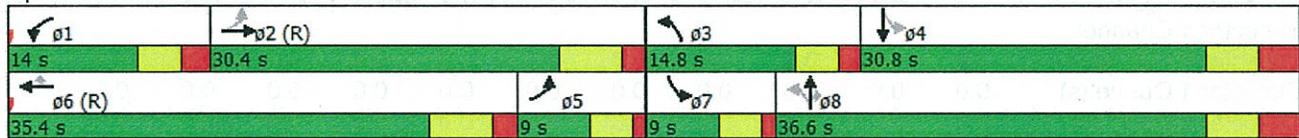
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1313	287	366	1420	169	326	111	388	122	116	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145		75	265		0	200		230	135		190
Storage Lanes	1		1	2		1	1		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00		0.97	1.00					0.99
Frt			0.850			0.850			0.850			0.938
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	1770	1863	1583	1770	1735	0
Flt Permitted	0.147			0.950			0.292			0.681		
Satd. Flow (perm)	273	5085	1562	3427	5085	1531	542	1863	1583	1269	1735	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355			221			397			39
Link Speed (mph)		40			40			35				30
Link Distance (ft)		599			846			336				484
Travel Time (s)		10.2			14.4			6.5				11.0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	123	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	210	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			24			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	
Detector 1 Type	CI+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	Free	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free			6	8		8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	6.0	6.0	5.0	6.0	
Minimum Split (s)	9.0	23.1		10.0	23.1	23.1	9.5	36.6	36.6	9.0	30.6	

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	9.0	30.4		14.0	35.4	35.4	14.8	36.6	36.6	9.0	30.8	
Total Split (%)	10.0%	33.8%		15.6%	39.3%	39.3%	16.4%	40.7%	40.7%	10.0%	34.2%	
Maximum Green (s)	5.0	24.3		9.0	29.3	29.3	10.3	30.0	30.0	5.0	24.2	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	1.8		2.0	1.8	1.8	1.5	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.1		5.0	6.1	6.1	7.5	6.6	6.6	4.0	6.6	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		4.0			4.0	4.0		4.0	4.0		4.0	
Flash Dont Walk (s)		13.0			13.0	13.0		26.0	26.0		20.0	
Pedestrian Calls (#/hr)		5			5	5		5	5		5	
Act Effct Green (s)	36.2	34.1	90.0	9.0	39.1	39.1	26.6	20.2	20.2	22.0	14.4	
Actuated g/C Ratio	0.40	0.38	1.00	0.10	0.43	0.43	0.30	0.22	0.22	0.24	0.16	
v/c Ratio	0.85	0.72	0.20	1.13	0.68	0.23	1.34	0.28	0.62	0.39	0.68	
Control Delay	71.3	28.4	0.3	128.8	23.9	2.4	202.5	28.8	7.8	23.8	38.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.3	28.4	0.3	128.8	23.9	2.4	202.5	28.8	7.8	23.8	38.9	
LOS	E	C	A	F	C	A	F	C	A	C	D	
Approach Delay		27.6			41.7			87.6			33.1	
Approach LOS		C			D			F			C	

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of 1st Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.34
 Intersection Signal Delay: 43.8 Intersection LOS: D
 Intersection Capacity Utilization 86.8% ICU Level of Service E
 Analysis Period (min) 15
 Description: Westminster Signal

Splits and Phases: 1510: Westminster/Westminster Blvd. W. & W. 92nd Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1313	287	366	1420	169	326	111	388	122	116	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145		75	265		0	200		230	135		190
Storage Lanes	1		1	1		1	2		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.98			0.96	0.99					0.99
Frt			0.850			0.850			0.850			0.938
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	1863	1583	1770	1734	0
Flt Permitted	0.160			0.125			0.950			0.681		
Satd. Flow (perm)	297	5085	1548	233	5085	1527	3415	1863	1583	1269	1734	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			180			413			30
Link Speed (mph)		40			40			35				30
Link Distance (ft)		599			846			336				484
Travel Time (s)		10.2			14.4			6.5				11.0
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	123	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	210	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		12			12			24				12
Link Offset(ft)		0			0			0				0
Crosswalk Width(ft)		16			16			16				16
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	
Detector 1 Type	CI+Ex											
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	pm+pt	NA	Free	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		Free	6		6			8	4		
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	6.0	6.0	5.0	6.0	
Minimum Split (s)	9.0	23.1		10.0	23.1	23.1	9.5	36.6	36.6	9.0	30.6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	12.0	37.2		23.0	48.2	48.2	19.2	39.8	39.8	10.0	30.6	
Total Split (%)	10.9%	33.8%		20.9%	43.8%	43.8%	17.5%	36.2%	36.2%	9.1%	27.8%	
Maximum Green (s)	8.0	31.1		18.0	42.1	42.1	14.7	33.2	33.2	6.0	24.0	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	1.8		2.0	1.8	1.8	1.5	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.1		5.0	6.1	6.1	7.5	6.6	6.6	4.0	6.6	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		4.0		4.0	4.0		4.0	4.0		4.0		
Flash Dont Walk (s)		13.0		13.0	13.0		26.0	26.0		20.0		
Pedestrian Calls (#/hr)		5		5	5		5	5		5		
Act Effct Green (s)	41.2	39.1	110.0	51.2	50.1	50.1	11.4	25.2	25.2	24.8	16.2	
Actuated g/C Ratio	0.37	0.36	1.00	0.47	0.46	0.46	0.10	0.23	0.23	0.23	0.15	
v/c Ratio	0.76	0.77	0.20	1.08	0.65	0.23	0.97	0.28	0.61	0.42	0.75	
Control Delay	62.4	36.1	0.3	101.2	25.8	3.9	91.3	35.0	7.2	30.6	53.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.4	36.1	0.3	101.2	25.8	3.9	91.3	35.0	7.2	30.6	53.9	
LOS	E	D	A	F	C	A	F	D	A	C	D	
Approach Delay		32.6			38.0			44.2			45.0	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of 1st Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 37.6

Intersection LOS: D

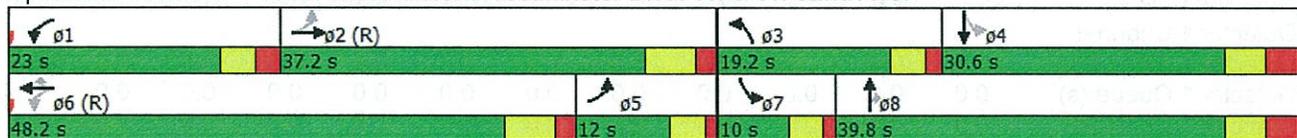
Intersection Capacity Utilization 87.9%

ICU Level of Service E

Analysis Period (min) 15

Description: Westminster Signal

Splits and Phases: 1510: Westminster/Westminster Blvd. W. & W. 92nd Ave.



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	1313	287	366	1420	169	326	111	388	122	116	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	145		75	265		0	200		230	135		190
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (ft)	50			50			50			50		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00		0.99	1.00		0.97	1.00				0.99	
Frt			0.850			0.850			0.850		0.938	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5085	1583	3433	5085	1583	3433	1863	1583	1770	1735	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1767	5085	1562	3427	5085	1531	3419	1863	1583	1770	1735	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355			221			279		39	
Link Speed (mph)		40			40			35			30	
Link Distance (ft)		599			846			336			484	
Travel Time (s)		10.2			14.4			6.5			11.0	
Confl. Peds. (#/hr)	5		5	5		5	5					5
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	123	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1397	305	389	1511	180	347	118	413	130	210	0
Enter Blocked Intersection	No	No	No	No	No							
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			24			24			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	30	20	20	30	20	20	30	20	20	30	
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	30	20	20	30	20	20	30	20	20	30	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex							
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA	Free	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			Free			6			8			
Detector Phase	5	2		1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	5.0	10.0		5.0	10.0	10.0	5.0	6.0	6.0	5.0	6.0	
Minimum Split (s)	9.0	23.1		10.0	23.1	23.1	9.5	36.6	36.6	9.0	30.6	

	↖	→	↘	↙	←	↖	↙	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	10.0	31.4		13.0	34.4	34.4	15.0	36.6	36.6	9.0	30.6	
Total Split (%)	11.1%	34.9%		14.4%	38.2%	38.2%	16.7%	40.7%	40.7%	10.0%	34.0%	
Maximum Green (s)	6.0	25.3		8.0	28.3	28.3	10.5	30.0	30.0	5.0	24.0	
Yellow Time (s)	3.0	4.3		3.0	4.3	4.3	3.0	3.6	3.6	3.0	3.6	
All-Red Time (s)	1.0	1.8		2.0	1.8	1.8	1.5	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	6.1		5.0	6.1	6.1	7.5	6.6	6.6	4.0	6.6	
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	
Walk Time (s)		4.0		4.0	4.0		4.0	4.0		4.0		
Flash Dont Walk (s)		13.0		13.0	13.0		26.0	26.0		20.0		
Pedestrian Calls (#/hr)		5		5	5		5	5		5		
Act Effct Green (s)	6.0	35.0	90.0	8.0	38.0	38.0	7.5	20.3	20.3	5.0	14.3	
Actuated g/C Ratio	0.07	0.39	1.00	0.09	0.42	0.42	0.08	0.23	0.23	0.06	0.16	
v/c Ratio	1.40	0.71	0.20	1.28	0.70	0.23	1.21	0.28	0.72	1.33	0.68	
Control Delay	256.9	27.3	0.3	182.8	25.2	2.5	161.1	28.7	17.4	237.9	39.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	256.9	27.3	0.3	182.8	25.2	2.5	161.1	28.7	17.4	237.9	39.0	
LOS	F	C	A	F	C	A	F	C	B	F	D	
Approach Delay		43.2			52.7			75.7			115.1	
Approach LOS		D			D			E			F	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 57.3

Intersection LOS: E

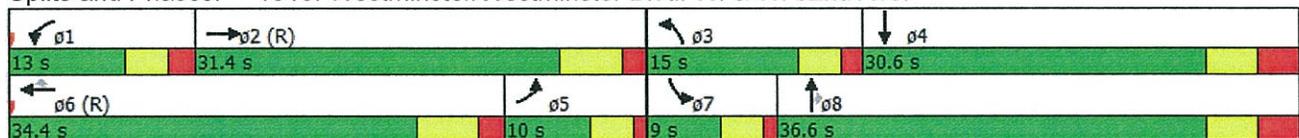
Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

Description: Westminster Signal

Splits and Phases: 1510: Westminster/Westminster Blvd. W. & W. 92nd Ave.





8.3

UTILITY PLAN

***DOWNTOWN WESTMINSTER
WESTMINSTER MALL REDEVELOPMENT
PRELIMINARY DEVELOPMENT PLAN UTILITY STUDY***

SEPTEMBER 18, 2013

PREPARED BY:

MARTIN/MARTIN, INC.
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215
(303) 431-6100
PROJECT NO. 13.0463

PREPARED FOR:

TORTI GALLAS & PARTNERS, INC.
523 WEST 6TH STREET, SUITE 212
LOS ANGELES, CALIFORNIA 90014
(213) 607-0070
NEAL PAYTON

PRINCIPAL-IN-CHARGE: RAYMOND M. TUTTLE, P.E.

PROJECT MANAGER: DAVID A. LOVATO, P.E.

PROJECT ENGINEER: JACQUELYN STACKHOUSE, P.E.

“This Utility Report for the design of the Downtown Westminster development was prepared by me or under my direct supervision in accordance with the City of Westminster’s Standards and Specifications and acceptable professional practices of the industry. We acknowledge that the City of Westminster’s review of this Utility Study is only for general conformance with submittal requirements, current design criteria and standard engineering principles and practices. We are also aware of the provisions of Section 11-6-5(B) of the City Code of the City of Westminster.”

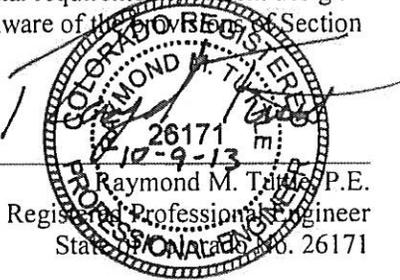


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BACK POCKET – UTILITY PLAN

INTRODUCTION

This utility study accompanies the Preliminary Development Plan for the Downtown Westminster – Westminster Mall Redevelopment. This site was previously the location of the Westminster Mall. The majority of the buildings on-site have been demolished in preparation for the redevelopment project. The JCPenny and the Brunswick Zone are to remain. This utility study will supersede any previously approved utility studies for this property.

I. PROJECT LOCATION AND DESCRIPTION

A. Location

The site is located in the south half of Section 24, Township 2 South, Range 69 West of the 6th Principal Meridian, City of Westminster, County of Jefferson, State of Colorado. The property is bounded by North Harlan Street to the west, West 88th Avenue to the south, Denver Boulder Turnpike (US Highway 36) right-of-way and Sheridan Boulevard to the east, and West 92nd Avenue to the north.

B. Description of Property

The site is approximately 107.39 acres of the former Westminster Mall property. This site was previously developed and is covered with buildings, pavement and landscaped areas. The majority of buildings on-site have been demolished in preparation for redevelopment, and native grasses and weeds are growing in the stripped, vacant lots. The proposed Downtown Westminster will consist of a combination of multifamily residential and commercial development.

II. SYSTEM LAYOUT

A. Existing Water Infrastructure

The former Westminster Mall site is located within existing water Zone 1. Zone 1 only provides a residual pressure of 40 psi to the development, which is located at the high point of the zone, and a private on-site booster pump is used to bring the pressure up to 90 psi for fire suppression/protection.

B. Proposed Water Infrastructure

Several options to serve the proposed Downtown Westminster redevelopment were evaluated in “Distribution System Modeling Series 600 – Task 604: Zones 3 Evaluation” and “Westminster Urban Reinvestment Project (WURP) Water Storage Hydraulic Modeling Analysis,” both completed by URS. The first report evaluated the water network under several possible scenarios, including extending Zone 3 to Pierce Street and 95th Avenue for 80%, 100%, and 120% of the planned WURP demand, serving the redeveloped Subarea A (this redevelopment site - the former Westminster Mall) on Zone 1, extending Zone 3 to Subarea A only, and extending Zone 3 to Subarea A, 88th Avenue, Pierce Street, and their adjacent mains. The later evaluated the advantages and disadvantages of creating a brand new zone (Zone 18) to serve the development versus extending Zone 3. The recommendation stemming from these analyses was to extend Zone 3 to serve 100% of the planned WURP development.

The extension of Zone 3 will require the installation of a 24” transmission main within 92nd Avenue which crosses Highway 36 and Sheridan Boulevard, a pump station for Zones 3 and 4, and a 2.5 MG storage tank. The engineer’s estimate of probable construction cost performed in 2012 was approximately \$18.3 million for the Zone 3 extension.

C. Existing Sanitary Sewer Infrastructure

The existing site drains via existing 12” and 18” sanitary sewer lines to the south, adjacent to Sheridan Boulevard, discharging to the Little Dry Creek outfall. The existing sanitary sewer at the southeast corner of the site will serve as a connection point for the redeveloped site and proposed infrastructure.

D. Proposed Sanitary Sewer Infrastructure

The redeveloped site will drain to the existing sanitary sewer system and continue to use as much of the existing infrastructure as possible. Seven projects downstream are anticipated to upsize sections of pipe in order to accommodate sanitary flows from all of the development planned with the WURP. Six of the projects are currently accounted for in the City of Westminster’s CIP.

III. DESIGN FLOW REQUIREMENTS

A. Water Demands

The existing site has a peak demand of 150 Ac-ft/year (approximately 93 gpm), per the City of Westminster. The redevelopment can remain on Zone 1 with a temporary booster pump to bring the pressure up to acceptable levels until a design maximum day demand (MDD) of 93 gpm is reached. At that time, the Zone 3 extension will be triggered and infrastructure will need to be installed to connect the site to Zone 3. The anticipated MDD for the redevelopment of Subarea A was modeled as 950 gpm by URS in the "Distribution System Modeling Series 600 – Task 604: Zones 3 Evaluation." Based on the proposed land use for the redevelopment, the MDD is anticipated to be 2,203 gpm (see Appendix B for water demand calculations). Additional infrastructure improvements may be required to meet this demand. In order to limit the demand to the anticipated 950 gpm, the number of residential units would need to be reduced from 2,000 to 622. The Westminster Fire Department estimated the fire flow for Subarea A of the WURP to be 4,500 gpm, as referenced from the URS Zone 3 evaluation. Therefore, the total demand for Subarea A (MDD+FF) is anticipated to be 6,703 gpm under the proposed development conditions.

B. Sanitary Flows

The existing site has a peak sanitary flow of 150 Ac-ft/year (approximately 0.21 cfs), per the City of Westminster. The redevelopment can continue to use the existing sanitary sewer infrastructure until a peak design flow of 0.21 cfs is reached. At that time, the downstream upsizing projects will be triggered to accommodate the redeveloped flows. Sanitary flows were calculated using the City of Westminster criteria for the residential portion of the development, and City and County of Denver (CCOD) criteria for the commercial uses because CCOD criteria allows for calculating sanitary flow demands based on areas of individual buildings, which is a more conservative method, whereas City of Westminster does not. The total anticipated peak daily sewage flow, including infiltration, is 3.45 cfs for the redevelopment (see Appendix C for sanitary flow calculations).

IV. CONCLUSIONS

The proposed site is a 107.39 acre redevelopment of the former Westminster Mall to be developed into a combination of multifamily residential and commercial. The redeveloped site will continue to use as much of the existing water and sanitary infrastructure as possible. At the time that the existing water demands are exceeded by the new development, the extension of Zone 3 will be triggered. The extension of Zone 3 will require the installation of a 24" transmission main within 92nd Avenue which crosses Highway 36 and Sheridan Boulevard, a pump station for Zones 3 and 4, and a 2.5 MG storage tank. At the time that the existing sanitary flows are exceeded by the new development, the downstream upsizing projects will be triggered. A total of seven projects are anticipated to upsize sections of pipe in order to accommodate sanitary flows from all of the development planned with the WURP. The site's water and sanitary flow demands have been designed in accordance with the City of Westminster Standards and Specifications for Public Improvements.

V. REFERENCES

1. City of Westminster Standards and Specifications for Public Improvements, City of Westminster.
2. Distribution System Modeling Series 600 – Task 604: Zones 3 Evaluation, URS Corporation, Denver, Colorado, July 2011.
3. Westminster Urban Reinvestment Project (WURP) Water Storage Hydraulic Modeling Analysis, URS Corporation, Denver, Colorado, June 2012.
4. Water Storage Tanks Hydraulic Modeling Analysis, URS Corporation, Denver, Colorado, June 2011.
5. Sanitary Sewer Design Technical Criteria Manual, City and County of Denver Department of Public Works.

APPENDIX

MAPS



VICINITY MAP

N.T.S.

WATER DEMANDS

SANITARY FLOWS

DESIGN AIDS

- c) **Design flow requirements** – Complete design flow calculations and a discussion explaining the calculations and assumptions shall be provided. Items shall include types of facilities to be served, fire flow calculations based on building construction type and floor area, developed land area, number of units based on land use, and population densities. Calculations for Average Day, Max Day and Peak Hour demands shall be presented. Max Day plus Fire Flow and Peak Hour demand scenarios shall be evaluated for worst case and shall include domestic demands, building sprinkler flows and domestic irrigation flows. Data shall be presented in table format, if possible, for ease of reading. The report shall acknowledge that the Fire Department has provided the required fire flows and that they approve of the proposed fire hydrant locations.
- d) **Hydraulic Analysis** – A detailed description of modeling assumptions and rationale shall be provided in the report text such that the analysis is clear and can be confirmed. Results of the analysis at a minimum shall include: minimum and maximum system pressures for the various scenarios modeled, corresponding node locations, distribution of fire flows among hydrants, and maximum pipe velocities. Data should be presented in table format. Reference shall be made to modeling data in the appendix and a figure of the pipe and node network provided.
- e) **Conclusions** – a description of the results and how they follow the City criteria shall be provided. Any deviations from the City criteria shall be described and applicable variances requested.
- C) f) **Appendices** - Printed data output from the modeling results shall be provided in the appendix and shall correspond with a figure of the pipe and node network. The appendix shall also include hydrant flow test results, hand calculations and any other pertinent data. A large size figure (24" x 36") illustrating the existing and proposed utility improvements shall be provided and shall conform to the City's latest master plan. The drawing shall include pressure zone boundaries, building finished floor elevations, elevation contours and locations of proposed and existing utility easements and right-of-way.

3.13.0 DESIGN DEMAND

The domestic demands for a particular development vary depending on the type of development, land use density, irrigation demand and building fire sprinkler flow requirements. However, the demand used to design a water system is largely a function of the required fire flow for a particular development.

There are two general categories of development for which domestic flow rates are determined: residential and commercial/industrial. Domestic demands for these developments are determined from Tables 3.13.A, 3.13.B and 3.13.C below and then peaking factors are applied to develop the Maximum Day Demand and Peak Hour Demand as follows:

$$\begin{aligned} \text{Maximum Day Demand} &= 2.5 \times \text{Average Day Demand} \\ \text{Peak Hour Demand} &= 4.0 \times \text{Average Day Demand} \end{aligned}$$

Domestic demands for a development shall be combined with peak irrigation demand, building fire sprinkler demand and the project fire flow. The peak irrigation demand shall be determined by the irrigation designer and the fire sprinkler demand shall be determined by the fire sprinkler Engineer. The fire flow for a project is determined from the 2006 International Fire Code and requires the

approval of the City Fire Marshal. Factors such as building area and construction type are required to determine the fire flow for a structure.

The design of the water distribution system shall be based on the higher of the two demand scenarios:

Maximum Day Demand + project fire flow + building fire sprinkler flow + peak irrigation flow, or

Peak Hour Demand + peak irrigation flow.

The City shall be consulted for design criteria with regard to non-standard developments, design of municipal infrastructure such as transmission mains, pump stations, etc. and for development with unusually high demands. The City Engineer shall have final input in these instances.

Residential Average Day Demand shall be based on density, and zoning as determined by the Preliminary Development Plan and Official Development Plan for the project. A per capita demand of 200 gallons per person per day shall be applied toward the People per Unit specified in Table 3.13.A below. For residential planning purposes, Average Day Demand can be calculated on an acreage basis as specified in Table 3.13.A.

Table 3.13.A – Residential Average Day Demand Data.

Zoning	Type of Development	Units per Acre*	People per Unit*	Gallons per Acre-Day**
R-1 to R-5	Single Family Detached	Up to 5	2.62	1650
R-8 to R-18 and District Center	Single Family Attached	Up to 18	2.62	4150

Commercial and industrial Average Day Demands will vary widely depending on the type of development. The following criteria in Table 3.13.B is based on historic information from the City's water records and can be used to estimate the water usage for the various developments listed. The City of Westminster Water Resources Division should be consulted to determine tap fees.

Table 3.13.B – Commercial/Industrial Average Day Demand Data (Based on Building Area)

Type of Development	Unit	Design Demand (gallons/unit-day)
Auto Service and Repair	sf	0.12
Car Wash	bay	528
Childcare	sf	0.32
Church	sf	0.18
Grocery Store	sf	0.22
Gas Station with Car Wash	sf	8
Gas Station without Car Wash	sf	1.32
Hospital	sf	0.32
Hotel/Motel	room	130
Medical Office	sf	0.2
General Offices	sf	0.04
Restaurant	sf	1.1

Retail/Shopping Center	sf	0.16
School	sf	0.06
Warehouse/Industrial	sf	0.04

For commercial and industrial planning purposes, average day demands can be calculated on an acreage basis as specified in Table 3.13.C.

Table 3.13.C – Commercial/Industrial Average Day Demand Data (Based on Acreage)

Type of Development	Gallons per Acre-Day**
Retail Commercial	1400
Office	1400
Business Park	1400
District Center (non-residential)	1400
Industrial	220
School/Church	630

* From the “2004 City of Westminster Comprehensive Land Use Plan”

** From the City of Westminster “Water and Sewer Infrastructure Master Plan”, URS, 2010.

3.14.00 HYDRAULIC DESIGN

A computer generated hydraulic analysis of the proposed infrastructure, or “model”, shall be developed using standard industry software such as WaterCAD or City approved equal. In order for the model to properly correlate with the City’s distribution system, a hydrant flow test needs to be performed on nearby hydrants and static and residual pressures obtained as a function of flow rate. This data shall be used in the model to develop a water source curve, represented by a reservoir and pump, and this will allow modeled pressures to vary over a range of imposed demands. The water source curve functions as a boundary condition in the model where proposed piping interfaces with the existing distribution system at this boundary.

The objective during hydrant flow testing is to obtain a flow rate similar to the design demand required for the proposed development. The hydrants to be tested shall be determined by the City and data obtained during this test shall be valid for up to one-year, unless otherwise approved in writing by the City. Distribution system factors may require that a fire flow be increased for a particular area of the system, as determined by City engineering staff. A hydrant flow test shall be requested by the design engineer from the City Engineering Division.

Special analysis may be required by the City for developments requiring large flow demands and shall be discussed with the Utilities Division. Future changes in zone pressures, in conformance with the City’s latest master plan, shall be considered in the hydraulic analysis.

Upon approval by the City, exceptions to the computer generated hydraulic analysis may be made for the following:

- Developments requiring low domestic demands (less than 600 gpm) and with no fire flow requirement; or

4.12.01 Study

The study shall include, as a minimum, the following information and shall be typed and bound in an 8-1/2-inch x 11-inch folder:

- (A) Text, which addresses, a minimum of project location and description, project concept, discussion of any information that would affect the City's ability to serve the new area, and any recommendations and conclusions of the analysis.
- (B) The area, in acres, which could be served by gravity by the new sewer, shown on a topographic map which delineates the basin boundaries as stated in (G) below.
- (C) The estimated population densities and total population based on land use projections to be served by the new sewer.
- (D) The estimated quantity and quality of any industrial wastes to be discharged to the system.
- (E) Design flow rates, minimum and maximum flow velocities, minimum and maximum pipe slopes, and infiltration allowances.
- (F) The impact of the additional flows on the existing sanitary sewer system at all critical points between the proposed site and the major interceptor.
- (G) A utility map which includes, a minimum of, the following information:
 - Location of all proposed and existing easements and/or rights-of-way.
 - Existing and proposed sanitary sewer lines and appurtenances with sizes and slopes shown.
 - Basin delineation
 - All other existing and proposed utilities.

4.13.00 **DESIGN FLOW**

The flows used to design the sanitary sewer system for a particular development vary depending on the type of development. There are three general categories of development for which flow rates are given: residential development, commercial development and industrial development. Once the specific type of development is determined, the peak flows are calculated based on average demand, peak factor and infiltration/inflow amounts.

The following is a list of the criteria to be used in the preparation of all sanitary sewer system analyses:

Utility Study Criteria

Assume 2.90 People/Unit for all single family residential units *

Assume 1.80 People/Unit for all multi family units, including apartments.

Average Use: Residential -- 70 Gallons/Capita/Day **
Commercial -- 1000 Gallons/Acre/Day **
Industrial -- 1000 Gallons/Acre/Day **
School -- 25 Gallons/Capita/Day ***

Peak Factor = 3.0 **

Infiltration and Inflow Rate for all uses -- 1000 Gallons/Acre/Day **

Sanitary sewers shall be designed to convey the peak daily flow plus Infiltration and Inflow. If an industry uses more than the average allowance, then the sewer must be designed to handle that industry's peak daily flow.

Flow rates downstream of lift stations shall take into account the flow generated at the maximum pumping rate plus peak daily flow plus Infiltration and Inflow.

- * From "1988 Population and Household Estimates," published by the Denver Regional Council of Governments with revisions by City of Westminster planning staff.
- ** From "1986 Sewer System Master Plan - City of Westminster," Brown and Caldwell
- *** From "WPCF Manual of Practice No. 9, fifth printing," American Society of Civil Engineers and the Water Pollution Control Federation.

4.14.00 HYDRAULIC DESIGN/SIZING OF SEWER LINES

4.14.01 General

Sanitary sewer shall be designed to carry the discharge calculated in accordance with Section 4.23.00 and to transport suspended material such that deposits in the sewer are precluded

The minimum diameter for sanitary sewer mains shall be 8-inches.

Oversizing of mains may be required by the City, and the recovery of the costs of such oversizing shall be in accordance with the Municipal Code.

The minimum diameter for sanitary sewer service lines shall be 4 inches.

CITY AND COUNTY OF DENVER
DEPARTMENT OF PUBLIC WORKS

SECTION 2: SANITARY PLANNING CRITERIA

TABLE 2.04.3 - COMMERCIAL/INDUSTRIAL FLOW FACTORS

Type of Establishment Future Average Flow	(GPD/1000 Gross Building sq. ft.)
Office Buildings	200
Restaurants	500
Bar & Lounges	300
Hotels & Motels	350
Neighborhood Stores	200
Department Stores	200
Laundries & Dry Cleaning	1000
Banks & Financial Buildings	300
Medical Buildings & Clinics	300
Warehouses	100
Meat & Food Processing Plants	2800
Car Washes	1900
Service Stations	20
Auto Dealer, Repair & Service	150
Super Market	200
Trade Businesses - Plumbers, Exterminator, etc.	200
Mobile Home Dealer, Lumber Co., Drive-In Movies, Flea Markets	300
Places of Assembly - Churches, Schools, Libraries, Theaters	600
Factories - Manufacturing raw products into finished products	800
Hospitals	450 gal/bed

2.1 BRACKETS, DEMAND AND FIRE FLOW ASSUMPTIONS

2.1.1 Bracket Description

The six scenarios planned for this work were broken into two phases. The first phase included brackets 1, 2, and 3 consisting of 100, 80 and 120% of projected developed density for the WURP Subareas A-E. Demand projections for the second phase (brackets 4, 5, and 6) were determined based on results of the first phase. Brackets 4-6 assumed that WURP Subarea A will be built out, Subareas B-E will not be redeveloped, and the remainder of the City will operate under future demands.

Future demands for Subareas A-E modeled are summarized in Table 2.1.

**Table 2.1
Future Subareas A-E Demand, gpm**

WURP Subarea	100% WURP		80% WURP		120% WURP		No Redevelopment (except Subarea A)	
	MDD	MHD	MDD	MHD	MDD	MHD	MDD	MHD
A	950	1,520	760	1,216	1,140	1,824	950	1,520
B	525	840	420	672	630	1,008	61	98
C	600	960	480	768	720	1,152	169	271
D	294	471	235	377	353	565	209	333
E	133	213	106	170	160	255	53	85
Total	2,503	4,004	2,002	3,203	3,003	4,805	1,442	2,306

Currently the area where WURP redevelopment will occur is served by the pressure Zone 1. For brackets 1-3, Zone 3 was extended west to Pierce St so that WURP Subareas A, B, and C are served by Zone 3. Bracket 4 assumed that Zone 3 will not be extended. Bracket 5 extended Zone 3 to include Subarea A only. Bracket 6 includes Subarea A and areas that feed from 88th Ave east of Pierce St.

Six modeled brackets are summarized in Table 2.2.

**Table 2.2
Bracketing Analysis Description**

Bracket	Phase	Description	
1	1	100% WURP	Z3 Extension to Pierce St and 95th Ave
2		80% WURP	Z3 Extension to Pierce St and 95th Ave
3		120% WURP	Z3 Extension to Pierce St and 95th Ave
4	2	100% Subarea A	No Z3 Extension
5		100% Subarea A	Z3 Extension to include Subarea A only
6		100% Subarea A	Z3 Extension to include Subarea A, 88th Ave, Pierce St, adjacent mains

2.1.3 Fire Flow Assumptions

Required fire flows were provided by Mike Schafer with the Westminster Fire Department as follows:

2.1.3.1 Westminster Urban Reinvestment Project

The Westminster Urban Reinvestment Project (WURP) is a mixed-use high density redevelopment. The highest fire flow requirement of 4,500 gpm is estimated for the Subarea A that will replace the existing Westminster Mall.

2.1.3.2 Single Family Residential

The fire flow requirement for single family residential development is 1,500 gpm.

2.1.3.3 Fire Flow Assumptions Summary

In summary, the modeling was performed with the following fire flows:

- WURP Subarea A = 4,500 gpm
- Fire flow at other locations = 1,500 gpm

} ————— So design pt is 6,000 gpm for PS 3/4 & distribution system.

8.4

DRAINAGE PLAN

***DOWNTOWN WESTMINSTER
WESTMINSTER MALL REDEVELOPMENT
PHASE II DRAINAGE REPORT***

**JUNE 12, 2014
JULY 24, 2014**

PREPARED BY:

**MARTIN/MARTIN, INC.
12499 WEST COLFAX AVENUE
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(303) 431-6100
PROJECT NO. 13.0463**

PREPARED FOR:

**TORTI GALLAS & PARTNERS, INC.
523 WEST 6TH STREET, SUITE 212
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(213) 607-0070
NEAL PAYTON**

PRINCIPAL-IN-CHARGE: RAYMOND M. TUTTLE, P.E.

PROJECT MANAGER: DAVID A. LOVATO, P.E.

PROJECT ENGINEER: GINA B. GRAVES, P.E.

"I hereby affirm that this report and plan for the Phase II drainage design of the development, Downtown Westminster, was prepared by me (or under my direct supervision) in accordance with the provisions of the City of Westminster Storm Drainage Design and Technical Criteria for the owners thereof. I understand that the City of Westminster does not and will not assume liability for drainage facilities designed by others. I am also aware of the provisions of Section 11-6-5(B) of the City CODE as it pertains to the City's review."

David A. Lovato, P.E.
Registered Professional Engineer
State of Colorado No. 32137

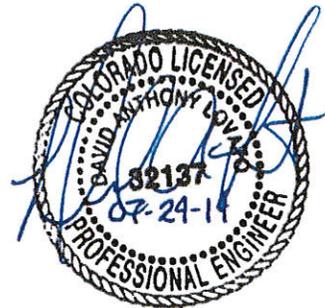


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BACK POCKET – DRAINAGE PLAN

INTRODUCTION

This site was previously the location of the Westminster Mall. The majority of the buildings on-site have been demolished in preparation for the redevelopment project. Buildings to remain include: JC Penny, US Bank, Olive Garden, Dentist office and the Brunswick Zone. This drainage study will supersede any previously approved drainage studies for this property.

I. GENERAL LOCATION AND DESCRIPTION

A. Location

The site is located in the south half of Section 24, Township 2 South, Range 69 West of the 6th Principal Meridian, City of Westminster, County of Jefferson, State of Colorado. The property is bounded by Harlan Street to the west, West 88th Avenue to the south, Denver Boulder Turnpike right-of-way and Sheridan Boulevard to the east, and West 92nd Avenue to the north. No major drainageways or storm drainage facilities are located within the site. The property drains to two existing ponds; one is located near the southeast corner of the site and the other is across W. 88th Avenue behind the Lowe's.

B. Description of Property

The site is approximately 107.39 acres of the former Westminster Mall property. The previous development consisted of two-story buildings, parking lots, drive aisles and landscaped areas. The original mall structure with the exception of JC Penney has been demolished. Native grasses and weeds are now growing in the stripped, vacant lots. The hydrologic soil group is Type C, according to the USDA Natural Resources Conservation Service's Web Soil Survey. The western portion of the site (Basin W) drains to existing storm sewer and outfalls to existing Detention Pond W, located south of the site, behind the Lowe's. The eastern portion of the site (Basin E) drains to existing storm sewer and outfalls to existing Detention Pond E, located in the southeast corner of the site, bounded by W. 88th Avenue and Sheridan Boulevard. There is no major drainage way or wetland areas within this site. Between the southern site boundary and the W. 88th Avenue right-of-way is an active irrigation canal.

The proposed Downtown Westminster will consist of a combination of multifamily residential developments, commercial developments, drive aisles, parking lots and landscaped areas. The existing on-site detention pond will be resized and relocated.

II. DRAINAGE BASINS

A. Major Basin Description

This site is located within Zone X as referenced from the FEMA Flood Insurance Rate Map (08059C0206E). The FEMA map legend defines "Zone X" as "areas determined to be outside the 0.2% annual chance floodplain" (500-year floodplain). Refer to Appendix A for Flood Insurance Rate Map. This site is divided into two major basins. The western basin conveys runoff to the existing Detention Pond W, south of the site, behind the Lowe's. The eastern basin conveys runoff to the existing Detention Pond E located just east of the southeast corner of the site, adjacent to the W. 88th Avenue & Sheridan Boulevard intersection. Proposed runoff will flow overland to proposed curb and gutter, storm sewer inlets, storm sewer piping and ultimately to the detention ponds. The proposed major basin delineations have been determined in order to control detention volume for the existing pond. The relocation of the on-site pond allows the pond to be sized to accommodate the proposed eastern major basin. The size of the western basin is limited to the allowable volume within the existing pond. No major drainage facilities are located within this site or anticipated to be affected by the redevelopment project. There is an existing irrigation canal that is located between the site's southern boundary and the right-of-way for 88th Avenue. The limits of the existing irrigation canal shall be outside the proposed site work. No grading is to occur within the limits of the irrigation canal.

B. Sub-Basin Description

A drainage plan (see back pocket) demonstrates the major basin delineations as well as the sub-basins. The eastern sub-basins are labeled "EA" for East Area and "ER" for East Roadway. Similarly, the western sub-basins are labeled "WA" for West Area and "WR" for West Roadway.

The eastern major basin will direct all runoff via a proposed storm sewer system to a proposed pond at the southeastern corner of the site, adjacent to the existing Olive Garden restaurant. The intent of the overlot grading is to slope streets to direct runoff via curb & gutter to proposed storm sewer inlets. The proposed storm sewer main will proceed north to south and is to be located within the right-of-way of the street. The western major basin will direct runoff via a proposed storm sewer system to the existing storm sewer system that will carry the runoff across W. 88th Avenue to the existing pond behind the existing Lowe's south of the site. The City is requiring that the percent impervious for each proposed area not exceed 80%. The roadways assume a 90% impervious. The proposed calculated eastern flow amounts are included in the Appendix.

III. DRAINAGE CRITERIA

City of Westminster Storm Drainage Design and Technical Criteria (STANDARDS), and the Urban Drainage and Flood Control District (UDFCD) “Urban Storm Drainage Criteria Manual” were used for the storm drainage system design.

The following criteria were utilized in developing the proposed drainage system.

- The proposed drainage system is designed to match, as best as possible, the historic drainage patterns occurring at the site.
- The proposed drainage system attempts to limit the diversion of storm runoff from one basin to another (basin transfer).
- Runoff generated from drainage sub-basins is conveyed either directly or via storm sewer systems or channels to outfall locations into a local detention pond where water quality facilities are located.

Design Rainfall: City of Westminster’s rainfall data is used to determine peak runoff values. The 5-year and 100-year frequency storms are used as the initial and major design storms respectively.

Runoff Calculation: Peak storm runoff is determined using the rational formula,

$$Q = CIA:$$

Q = storm runoff in CFS;

C = runoff coefficient based on surface impermeability;

I = rainfall intensity in inches per hour; and

A = drainage basin area in acres.

City of Westminster Recommended Runoff Coefficients and Percent Impervious Table (Table 602) are used to develop basin runoff coefficients. The runoff coefficients are weighted for each applicable sub-basin to more accurately reflect the runoff characteristics of the site.

Time of Concentration is determined using the criteria in Sections 3.4.1 and 3.4.2 of the UDFCD Criteria Manual.

Rainfall intensities are determined using STANDARDS Point Rainfall data and Intensity-Duration curves.

The recurrence intervals used for this study were based on a commercial land use. The minor drainage system is designed for a 5-year recurrence interval and the major drainage system is designed for a 100-year recurrence interval.

IV. DRAINAGE FACILITY DESIGN

A. General Concept

No existing drainage reports are available for this property. The record drawings for the existing storm system have been reviewed. The redeveloped site will continue to divide storm water runoff between the two existing detention ponds. No problems with capacity or overtopping have been observed by the City of Westminster in either of the two existing detention ponds. The intention is that the western basin will be manipulated so that the detention volume of the proposed site will not exceed the capacity of the existing pond. The existing eastern pond will be relocated in anticipation of the future Sheridan Boulevard re-alignment allowing the pond to be re-sized based on the requirements of the proposed eastern basin. Both ponds are required to provide water quality and detention volume for the 5-year and 100-year storm. The required water quality, EURV, detention volumes were calculated with the UDFCD's Full Spectrum Detention Design Worksheets (see Appendix for calculations) per the City of Westminster.

B. Historical Perspective

The western half of the property directs runoff to the south end of the site. It is estimated in the Phase I Historical Drainage Plan that the western basin is 68.85 acres. This basin primarily uses a stormwater piping system to direct flows. There does not appear to be any off-site storm water from the west or northwest that flows into this property.

The existing pond (behind Lowe's) was designed and built to include the stormwater runoff for the western basin. While comparing the record drawings with the current survey data it is apparent that at some point since the pond's initial construction the pond limits and volume were altered. The photo below shows that the eastern boundary of the pond has been moved to the west several feet. The back of the building sits very close to the initial location of the eastern ponds boundary. The top of pond on the east, behind the Labelle's Plaza Building has been lowered by 3 to 4 feet. The conjecture is that the Labelle's Plaza Building was altered, encroaching on the edge of pond so much so that eastern pond boundary was moved westerly to accommodate a necessary

drive aisle. Photos of the addition show a 3 to 4 foot raised foundation. It is our understanding that the revised intent of the pond (during the major storm) is expected to utilize the drive aisle for ponding to obtain the required volume. The record drawings for this pond note that

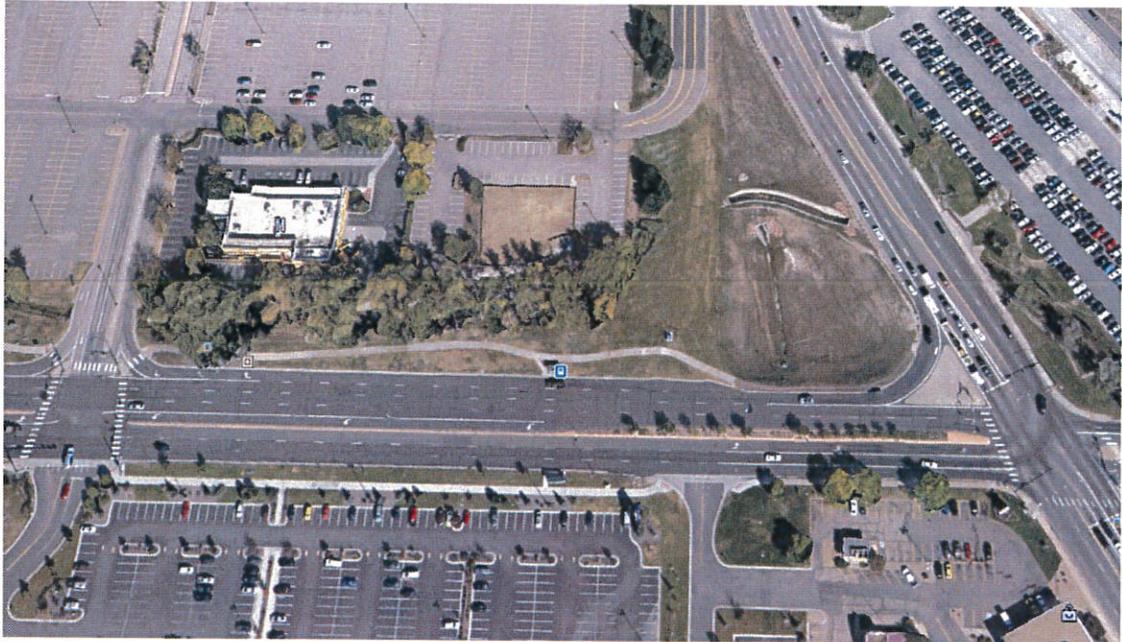


the estimated pond volume is 9.5 acre-feet at an elevation of 5421.2 feet. The record drawings show the 100-year WSEL at 5421.2 but does not give the required design volume. The drawings demonstrate a top of pond as 5426.00 feet. The pond outfalls through a dual release structure into a 42-inch concrete pipe at the south corner of the pond. This pond was surveyed to determine existing volume. Taking into consideration the ponding in the drive aisle, one foot of freeboard, the pond volume is 11.87 acre-feet at a WSEL of 5426.00. (Elevations from current survey and record drawings cannot be compared because the two surveys used different datum. The area to the west and north of the existing pond also generate stormwater runoff that is detained in the pond. Using a 95% imperviousness this area would generate a 100-year volume of approximately 4.36 acre-feet. This volume will be included with the proposed West Basin volumes to determine adequacy of existing pond.



The eastern half of the property directs runoff to the existing detention pond at the southeast corner of the site. It is estimated in the Phase I Historical Drainage Plan that the eastern basin is 38.54 acres. West 92nd Avenue has a low point just west of the existing main entrance. There are storm sewer inlets on both the north and south side of 92nd within this sump condition. The north inlet outflows through a storm pipe to the south inlet which then appears to direct flow via a storm pipe that joins the existing on-site storm sewer system. There appears to be two other systems that outfall to the inlets. The first is the detention pond for the single-family residential subdivision north of West 92nd Avenue appears to outfall to the northern inlet in 92nd Avenue. Secondly, the commercial business at the northwest corner of W. 92nd Avenue and N. Harlan Street appears to have a small water quality/detention pond that outfalls to the existing inlet along the north corner of 92nd & Harlan and this inlet outfalls to the existing 92nd Avenue inlet in sump.

Typical practice for off-site flow is to allow the off-site runoff through the on-site detention pond. This is accomplished by not including the basin area of the off-site with the on-site areas for the pond volume calculations. In order to bypass this flow through the detention pond the release rates must be added to the on-site release rates. Release rates are derived from basin areas. The estimated areas for the off-site residential basin is 3.5 acres and the basin area for the commercial area plus the right-of-way for 92nd Avenue is 4.45 acres.



The detention pond for the eastern basin is located at the northeast corner of the intersection of W. 88th Avenue and Sheridan Boulevard. The record drawings for this pond notes that the estimated pond volume is 4.5 acre-feet. The record drawings show the 100-year WSEL at 5441.10 feet but does not give the required design volume. The drawings demonstrate a top of pond as 5445.00 feet. The pond currently outfalls through a dual release structure into a 36-inch concrete pipe at the southwest corner of the pond. This Pond will need to be relocated to the west to accommodate the future proposed Sheridan Boulevard realignment.

C. Specific Details

The existing detention ponds will capture the runoff from the storm sewer system and overland flow from the western basin. The stormwater runoff is captured within an existing 66-inch diameter pipe that crosses W. 88th Avenue and outfalls into the north corner of the existing pond (behind Lowe’s). The full-flow capacity of this pipe is 158 cfs. The estimated Q100 for the West Basin is 229 cfs. Analyzing the aerial in an attempt to determine original design intent it stands out that this pipe crosses W. 88th Ave. at the low point of the street which is directly north of the existing pond. It appears that the overland flow of the 100-year storm is directed to the existing detention pond via curb & gutter and topography. Water quality is provided in the existing pond. The water quality, 5-year and 100-year storm volume calculations of the West Basin using a composite 82.37% imperviousness resulted in volumes of 1.52, 3.38 and 5.74 acre-feet. The 5-year WSEL will be determined with the water quality volume not included for a total of 4.90

acre-feet. The 100-year WSEL will include the water quality volume, 5.74 acre-feet. The total 100-year volume would be 5.74 acre-feet plus 4.36 acre-feet for a total of 10.10 acre-feet. The existing pond has a volume of 11.87 acre-feet at a WSEL of 5426.00, but ponds into the existing drive to achieve the required volume.

The stormwater runoff within the East Basin will be captured by a proposed detention pond via storm sewer system and overland flow. The water quality, EURV and 100-year storm volume calculations of the East Basin using an 80% imperviousness resulted in volumes of 2.00, 4.96 and 9.45 acre-feet. The corresponding water surface elevations are 5446.96, 5448.92 and 5451.53. A minimum of 1-foot of freeboard (5452.53) is required however the top of pond is at 5453.00. Two Type D inlets will be used for the outlet structure (see Detail Sheets in Appendix). The size of the inlet was determined based on the inlets ability to handle the 100-yr flow in a weir condition and orifice condition with the tightest criteria setting the constraint. The existing 36-inch pipe that outfalls into the street governs the maximum size of pipe leaving the proposed outlet structure. The existing inlet from the existing pond will be converted to a manhole. Release rates were determined based upon basin area. The off-site areas that are to be by-passed through the detention pond have a combined area of 7.95 acres. The commercial basin was estimated to be 4.45 acres. The release rates for the detention pond for the residential basin north of 92nd Avenue are noted to be $Q_{R100}=5.30$ cfs and $Q_{R5}=2.60$ cfs. Adding the off-site area to the East Basin area gives a total of 77.59 acres which produces a $Q_{R100}=78.44$ cfs and $Q_{R5}=15.04$ cfs.

V. CONCLUSION

A. Compliance with Standards

The drainage system for Downtown Westminster was designed to meet the City of Westminster's drainage criteria. The site does not include any F.E.M.A. mapped floodplains. The existing Flood Insurance Rate Map (F.I.R.M) is presented in Appendix A and shows no portion of the site to be in a flood hazard area. Therefore, no map revisions are required as part of this development.

B. Drainage Concept

The drainage system for Downtown Westminster was designed to allow storm water to be safely conveyed through and away from the site without negatively impacting downstream or upstream properties (regionally) beyond that imposed by the historic condition. All drainage facilities to be proposed with this development are public facilities and will be maintained by the City of Westminster.

C. Sediment and Erosion Control Concept

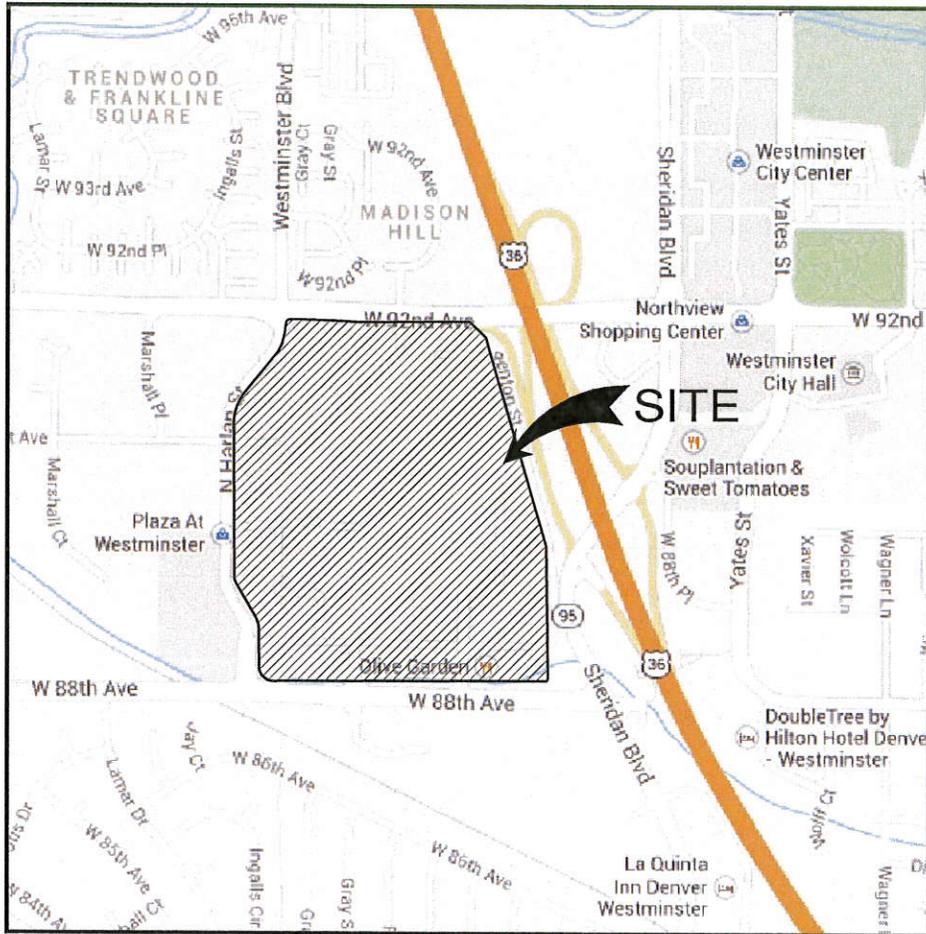
The construction BMP's proposed for this site follow the requirements of the City of Westminster and recommendations by UDFCD. Attention to proper installation and maintenance are essential for the sediment and erosion control practices to function properly.

VI. REFERENCES

1. Urban Drainage and Flood Control District, Denver, Colorado, *Urban Storm Drainage Criteria Manual*, Volumes 1, 2 & 3, June 2001 (with current revisions).
2. City of Westminster, *City of Westminster Storm Drainage Design and Technical Criteria*.

APPENDIX

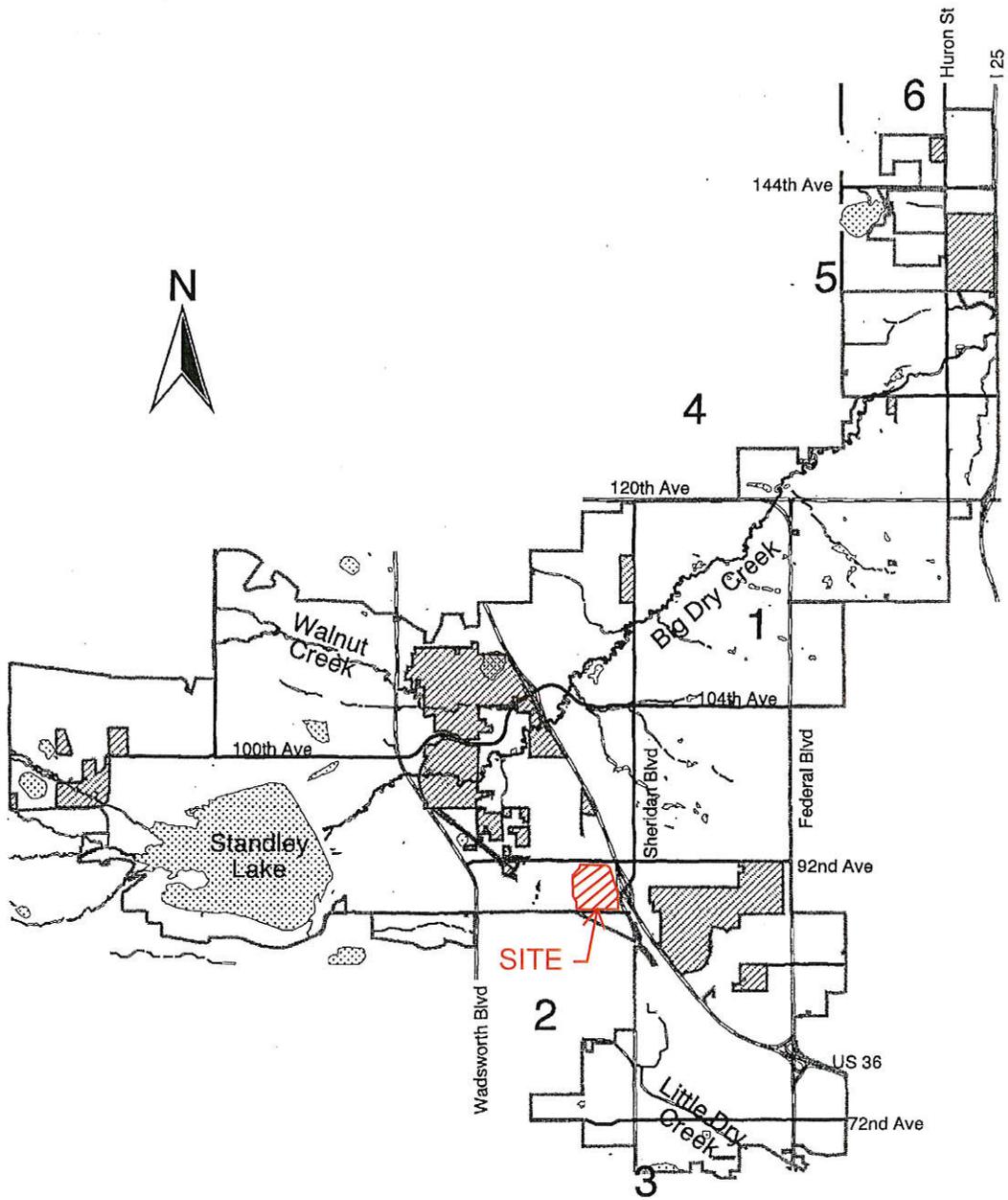
MAPS



VICINITY MAP

N.T.S.

Figure 201
Floodplain Information for the City of Westminster





MAP SCALE 1" = 500'



PANEL 0206 E

FIRM FLOOD INSURANCE RATE MAP JEFFERSON COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 206 OF 675
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:	COMMUNITY	NUMBER	PANEL	SUFFIX
WESTMINSTER, CITY OF	080008	0206	E	
JEFFERSON COUNTY UNINCORPORATED AREAS	080087	0206	E	
ARVADA, CITY OF	085072	0206	E	

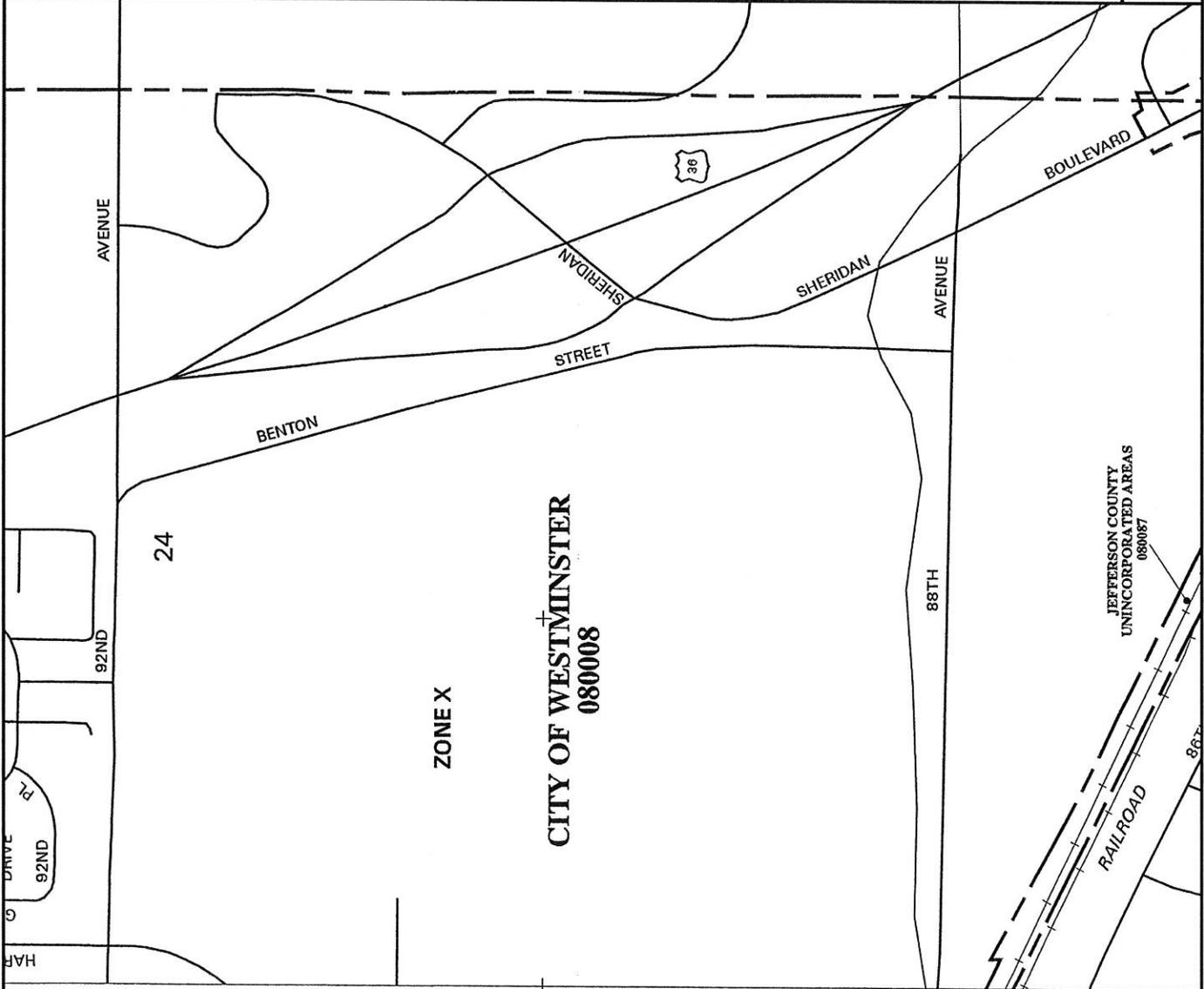
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
08059C0206 E
EFFECTIVE DATE:
JUNE 17, 2003

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



JOINS PANEL 0202

HYDROLOGY

PROJECT DOWNTOWN WESTMI
 JOB NO: 13.0463
 DATE: 04.01.14



T_C= 15
 I₅= 3.22
 I₁₀₀= 6.15

RUNOFF SUMMARY							
BASIN	DESIGN POINT	AREA (ACRES)	% IMP.	C ₅	C ₁₀₀	Q ₅ (CFS)	Q ₁₀₀ (CFS)
EA-1		1.58	80	0.63	0.74	3.21	7.20
EA-2		1.49	80	0.63	0.74	3.03	6.79
EA-3		1.56	80	0.63	0.74	3.16	7.09
EA-4		2.09	80	0.63	0.74	4.24	9.51
EA-5		1.95	80	0.63	0.74	3.95	8.86
EA-6		1.37	80	0.63	0.74	2.78	6.24
EA-7		2.66	80	0.63	0.74	5.40	12.12
EA-8		2.56	80	0.63	0.74	5.19	11.65
EA-9		2.58	80	0.63	0.74	5.23	11.74
EA-10		2.63	80	0.63	0.74	5.33	11.96
EA-11		2.41	80	0.63	0.74	4.89	10.98
EA-12		1.87	80	0.63	0.74	3.80	8.53
EA-13		7.57	80	0.63	0.74	15.35	34.43
EA-14		4.44	80	0.63	0.74	9.01	20.22
EA-15		2.71	80	0.63	0.74	5.49	12.31
EA-16		1.64	80	0.63	0.74	3.33	7.47
EA-17		1.89	80	0.63	0.74	3.84	8.62
SUB-TOTAL		43.01		0.63	0.74	87.25	195.74

ER-1		0.74	90	0.75	0.83	1.80	3.80
ER-2		1.52	90	0.75	0.83	3.68	7.78
ER-3		0.40	90	0.75	0.83	0.97	2.05
ER-4		0.40	90	0.75	0.83	0.97	2.05
ER-5		1.41	90	0.75	0.83	3.41	7.21
ER-6		0.67	90	0.75	0.83	1.63	3.43
ER-7		1.09	90	0.75	0.83	2.63	5.55
ER-8		2.92	90	0.75	0.83	7.06	14.93
ER-9		0.75	90	0.75	0.83	1.82	3.85
ER-10		2.35	90	0.75	0.83	5.68	12.01
ER-11		1.11	90	0.75	0.83	2.69	5.68
ER-12		0.31	90	0.75	0.83	0.74	1.57
ER-13		0.74	90	0.75	0.83	1.80	3.80
ER-14		0.18	90	0.75	0.83	0.43	0.90
ER-15		0.38	90	0.75	0.83	0.91	1.93
ER-16		0.38	90	0.75	0.83	0.91	1.93
ER-17		0.92	90	0.75	0.83	2.22	4.69
ER-18		1.39	90	0.75	0.83	3.37	7.11
ER-19		0.09	90	0.75	0.83	0.22	0.47
ER-20		0.26	90	0.75	0.83	0.62	1.31
ER-21		5.90	100	0.90	0.96	17.10	34.83
ER-22		2.70	100	0.90	0.96	7.82	15.94
SUB-TOTAL		26.63	93.23	0.76	0.84	42.71	90.27

TOTAL ON SITE							
EAST BASIN		69.64	85.06	0.68	0.79	152.49	338.36

RELEASE RATES FOR OFF SITE DETAINED BASINS (CFS)

OS-RE	3.50				0.60	3.50
OS-C	4.45				2.60	5.30
SUB-TOTAL	7.95				3.20	8.80

GRAND TOTAL OF FLOWS INTO EAST POND			
	77.59		347.16

5-YR RELEASE RATE 15.04
 100-YR RELEASE RATE 78.44

PROJECT: DOWNTOWN WESTMIN
 JOB NO: 13.0463
 DATE: 04.01.14



Tc= 15
 I5= 3.24
 I100= 6.16

RUNOFF SUMMARY							
BASIN	DESIGN POINT	AREA (ACRES)	% IMP.	C _s	C ₁₀₀	Q ₅ (CFS)	Q ₁₀₀ (CFS)
WA-1		2.06	80	0.63	0.74	4.20	9.38
WA-2		3.04	80	0.63	0.74	6.20	13.84
WA-3		4.09	80	0.63	0.74	8.35	18.64
WA-4		4.35	80	0.63	0.74	8.88	19.83
WA-5		2.33	80	0.63	0.74	4.76	10.62
WA-7		3.55	80	0.63	0.74	7.24	16.17
WA-8		2.96	80	0.63	0.74	6.03	13.47
WA-9		6.34	80	0.63	0.74	12.94	28.91
WA-10		3.21	80	0.63	0.74	6.55	14.62
WA-12		1.89	80	0.63	0.74	3.87	8.64
SUB-TOTAL:		33.81		0.63	0.74	69.01	154.12
WR-1		0.45	90	0.75	0.83	1.11	2.33
WR-2		0.26	90	0.75	0.83	0.62	1.31
WR-3		0.87	90	0.75	0.83	2.12	4.46
WR-4		0.80	90	0.75	0.83	1.95	4.11
WR-5		0.51	90	0.75	0.83	1.23	2.59
WR-6		0.32	90	0.75	0.83	0.78	1.65
WR-7		0.20	90	0.75	0.83	0.49	1.03
WR-8		0.56	90	0.75	0.83	1.37	2.88
WR-9		0.34	90	0.75	0.83	0.82	1.72
WR-10		0.21	90	0.75	0.83	0.51	1.07
WR-11		0.80	90	0.75	0.83	1.94	4.08
WR-12		0.60	90	0.75	0.83	1.46	3.07
WR-13		0.31	90	0.75	0.83	0.75	1.58
WR-14		0.31	90	0.75	0.83	0.76	1.60
WR-15		0.94	90	0.75	0.83	2.29	4.83
WR-16		0.74	90	0.75	0.83	1.80	3.79
WR-17		0.44	90	0.75	0.83	1.08	2.27
WR-18		0.55	90	0.75	0.83	1.33	2.79
WR-19		0.88	90	0.75	0.83	2.13	4.48
WR-20		0.10	90	0.75	0.83	0.24	0.51
WR-22		0.27	90	0.75	0.83	0.66	1.39
SUB-TOTAL:		8.09		0.75	0.83	19.65	41.35
TOTAL							
WEST BASIN:		41.90	81.93	0.65	0.76	88.24	196.15

WATER QUALITY/ DETENTION

PROJECT: Downtown Westminster
PRO. NO. 13.0463
DESIGN BY: G. GRAVES
REV. BY: D. LOVATO
AGENCY: CITY OF WESTMINSTER
METHOD: V=KA
DATE: 3/31/2014

EXISTING
REQUIRED DETENTION BASIN VOLUMES

$K_{100} = (1.78 * I - 0.002 * I^2 - 3.56) / 1000$
 $K_5 = (0.77 * I - 2.26) / 1000$

BASIN	AREA (AC)	% IMP.	K5	K100
West	68.85	87.80	0.082	0.137
East	38.54	92.00	0.086	0.143
Lowes	31.04	90.00	0.084	0.140

V=KA METHOD- VOL		
BASIN	5-YR.	100-YR.
West	5.61	9.45
East	3.30	5.52
Lowes	2.59	4.36

VOLUMES ARE IN ACRE-FT

REQUIRED RELEASE RATES

BASIN	AREA (AC)	100 YR	5 YR
West	68.85	68.85	11.70
East	38.54	38.54	6.55
Lowes	31.04	31.04	5.28

PROJECT: Downtown Westminster
PRO. NO. 13.0463
DESIGN BY: G. GRAVES
REV. BY: D. LOVATO
AGENCY: CITY OF WESTMINSTER
METHOD: V=KA
DATE: 3/31/2014
REV:

EXISTING

WATER QUALITY VOLUME REQUIRED

REQ'D VOL=(WQCV/12)*(AREA)*(1.2)
 WQCV=a((0.91*i^3)-(1.19*i^2)-(0.78*i))
 a=1.0 FOR 40HR. DRAIN TIME

BASIN	AREA	% IMP.	WQCV	REQ'D VOL. (AC-FT)
West	68.85	87.80	0.38	2.64
East	38.54	92.00	0.42	1.61
Lowes	31.04	90.00	0.40	1.25

TOTAL REQUIRED VOLUME (WATER QUALITY PLUS DETENTION)

BASIN	WQ VOL	5-YR VOL	100YR VOL*
West	2.64	5.61	9.45
East	1.61	3.30	5.52
Lowes	1.25	2.59	4.36

*DENOTES THAT VOLUME INCLUDES WATER QUALITY

POND VOLUMES

Westminster Mall Redevelopment
 Existing **LOWE'S POND** Ponding to Building Face

CONTOUR	AREA (SF)	VOLUME (CF)	SUM VOLUME (CF)	VOLUME (ACRE-FT)
5414.5	0			
5415	24.63	4.11	4.11	0.00
5416	1619.44	614.60	618.70	0.01
5417	16093.29	7605.95	8224.65	0.19
5418	30564.51	22945.42	31170.06	0.72
5419	40840.55	35578.65	66748.71	1.53
5420	49460.9	45081.99	111830.70	2.57
5421	55882.52	52639.06	164469.76	3.78
5422	61290.366	58565.63	223035.39	5.12
5423	65967.12	63614.42	286649.81	6.58
5424	73995	69942.66	356592.47	8.19
5425	80527	77237.98	433830.45	9.96
5426	86152	83323.68	517154.12	11.87

	VOLUME	ELEVATION
WATER QUALITY VOLUME REQ'D =	2.770	5420.17
5-YR VOLUME PLUS WQ=	8.740	5424.31
100YR VOLUME REQ'D (INCLUDING WQ)=	10.10	5425.07
5 YR RELEASE (CFS)=	12.81	
100YR RELEASE (CFS)=	75.33	

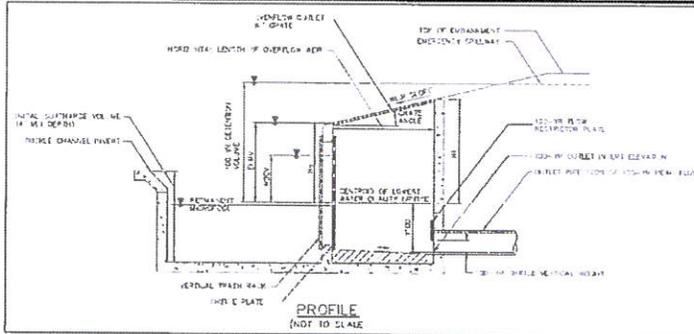
NOTE:

1-FOOT OF FREEBOARD GIVES TOP OF POND ELEVATION: 5426.07

Initial Design for Full Spectrum Detention Basins

Project: DOWNTOWN WESTMINSTER

Basin ID: EAST BASINS - EAST POND



User Input: Watershed Parameters

Watershed Area =	69.64	acres
Watershed Imperviousness =	80.0%	percent
Percentage Hydrologic Soil Group A =		percent
Percentage Hydrologic Soil Group B =		percent
Percentage Hydrologic Soil Groups C/D =	100%	percent
Location for 1-hr Rainfall Depths = Westminster - Westminster City Hall		

Calculated Watershed Parameters

Required EURV =	229,885	ft ³
Routed EURV =	5,292	acre-ft
Routed EURV =	230,503	ft ³
Calc. vs. Req. Volume % Diff =	0.3%	
EURV Drain Time =	64.42	hrs

User Input: Detention Basin Parameters

Depth of Initial Surcharge Volume =	0.33	ft
Trickle Channel Slope =	0.008	ft/ft
Detention Basin Length to Width Ratio =	2.00	L/W
Basin Side Slope (Above Basin Floor) =	4.00	H/V
Available EURV Ponding Depth =	4.50	ft (relative to lowest WQ orifice)
Desired WQCV Drain Time =	40	hours

Calculated Detention Basin Parameters

Surface Area of Initial Surcharge Volume =	852	ft ²
Maximum EURV Ponding Depth =	4.40	ft
Depth Where Basin Floor Meets Side Slopes =	3.75	ft

User Input: Outlet Structure Parameters

Overflow Weir Front Edge Height, H _o =	4.5	ft (relative to lowest WQ orifice)
Overflow Weir Front Edge Length =	11.3	ft
Overflow Weir Slope =	0	H:V (enter zero for flat grate)
Horizontal Length of the Overflow Weir Sides =	2.9	ft
Overflow Grate Open Area % =	70%	% grate open area / total area
Debris Clogging % =	50%	% of open area clogged w/ debris
Water Quality Plate Type = WQ Orifice Plate		
WQ Orifice Plate Orifice Vertical Spacing =	1.4	in
WQ Orifice Plate Orifice Area per Row =	1.08	sq. inch (diameter = 1-1/8 inches)

Calculated Overflow Grate Parameters

Height of Grate Upper Edge H _g =	4.5	ft
Grate Open Area / 100-yr Orifice Area =	3.3	should be ≥ 4
Overflow Weir Slope Length =	2.9	ft
Overflow Grate Open Area w/o Debris =	23	ft ²

Calculated WQ Plate Parameters

WQ Orifice Area per Row =	7.500E-03	ft ²
Elliptical Half-Width =	N/A	ft
Elliptical Slot Centroid =	N/A	ft
Elliptical Slot Area =	N/A	ft ²

User Input: 100-Year Orifice Parameters

100-Year Restrictor Type =	Circular Pipe w/ Plate	
100-Year Orifice Invert Depth =	0.2	ft (below the lowest WQ orifice)
100-Year Outlet Pipe Diameter =	36.0	in
100-Year Restrictor Plate Height =	36.0	in

Calculated 100-yr Orifice Parameters

100-Year Orifice Area =	7.1	ft ²
100-Year Orifice Centroid =	1.50	ft
Half-Central Angle of Plate on Pipe =	3.14	radians

User Input: Emergency Spillway Parameters

Spillway Crest Stage =	6.9	ft (relative to lowest WQ orifice)
Spillway Crest Length =	63	ft
Spillway End Slopes =	4.00	H/V
Freeboard above Spillway =	1.00	ft

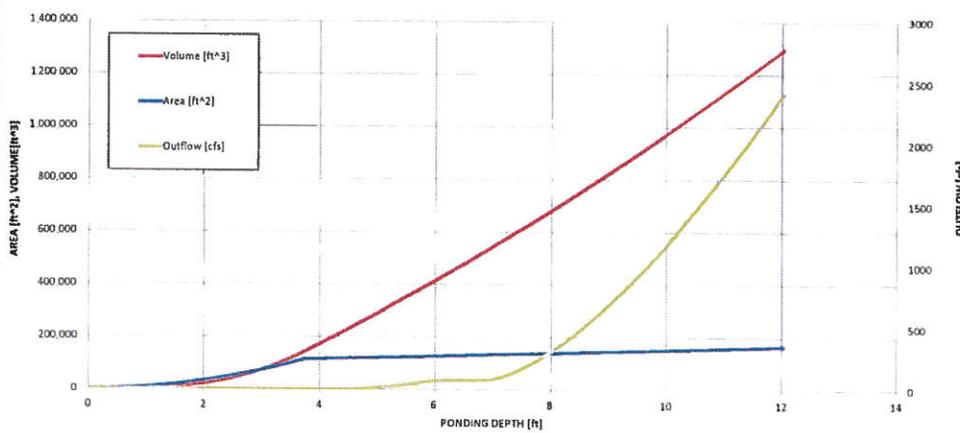
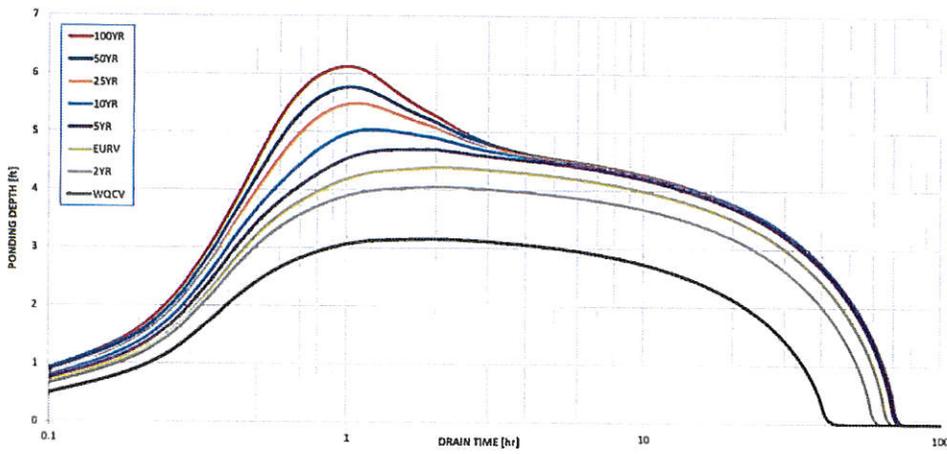
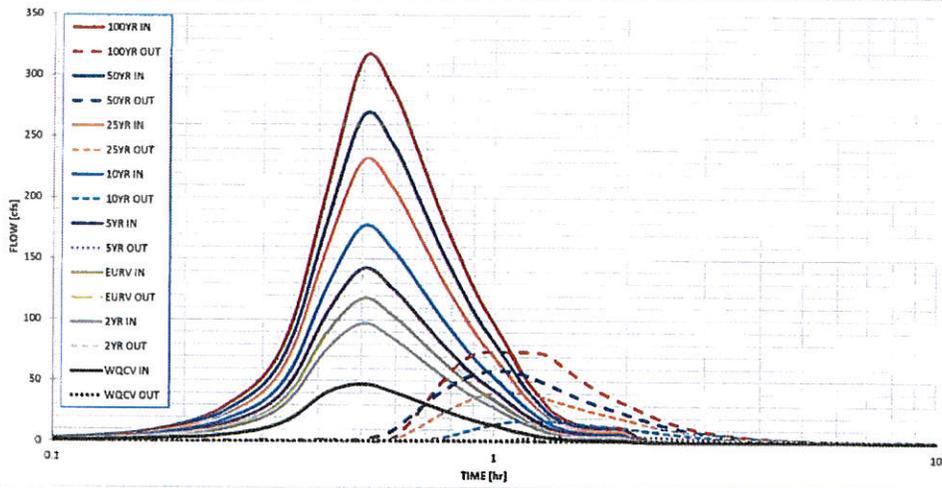
Calculated Spillway Parameters

Depth of Flow through Spillway =	2.8	ft
Stage at Top of Freeboard =	10.7	ft
Detention Basin Area at Top of Freeboard =	3.60	acres

Routed Hydrograph Results For 2:1 L:W Rectangular Basin with 0.008 ft/ft Slope Trickle Channel

	WQCV	2 Year	EURV	5 Year	10 Year	25 Year	50 Year	100 Year	
Design Storm Return Period	0.53	0.96	1.07	1.38	1.64	2.03	2.30	2.63	
One-Hour Rainfall Depth	2.152	4.352	5.277	6.369	7.909	10.335	12.004	14.109	in
Calculated Runoff Volume									acre-ft
OPTIONAL Override Runoff Volume									acre-ft
Inflow Hydrograph Volume	2.151	4.352	5.271	6.364	7.908	10.335	11.997	14.108	acre-ft
Historic Peak Flow Rate Per Acre (q)	0.00	0.02	0.10	0.38	0.61	0.94	1.17	1.46	cfs/acre
Historic Peak Q	0.0	1.6	7.0	26.7	42.3	65.6	81.7	101.4	cfs
Peak Inflow Q	47.6	97.2	117.8	142.4	176.9	231.0	267.8	314.4	cfs
Peak Outflow Q	1.2	1.6	1.7	5.5	17.6	41.3	58.7	74.5	cfs
Ratio Peak Outflow to Historic Q	N/A	N/A	N/A	0.2	0.4	0.6	0.7	0.7	Ratio
Structure Controlling Flow	WQ Plate	WQ Plate	WQ Plate	Grate	Grate	Grate	Grate	100yr Outlet	
Max Velocity through Grate	N/A	N/A	N/A	0.2	0.7	1.7	2.4	3.1	fps
Time to Drain Detention Basin	40	58	64	69	69	70	70	70	hours
Maximum Ponding Depth	3.17	4.06	4.40	4.71	5.04	5.49	5.77	6.13	ft
Maximum Volume Stored	1.989	4.122	5.020	5.852	6.774	8.058	8.847	9.886	ac-ft

Initial Design for Full Spectrum Detention Basins

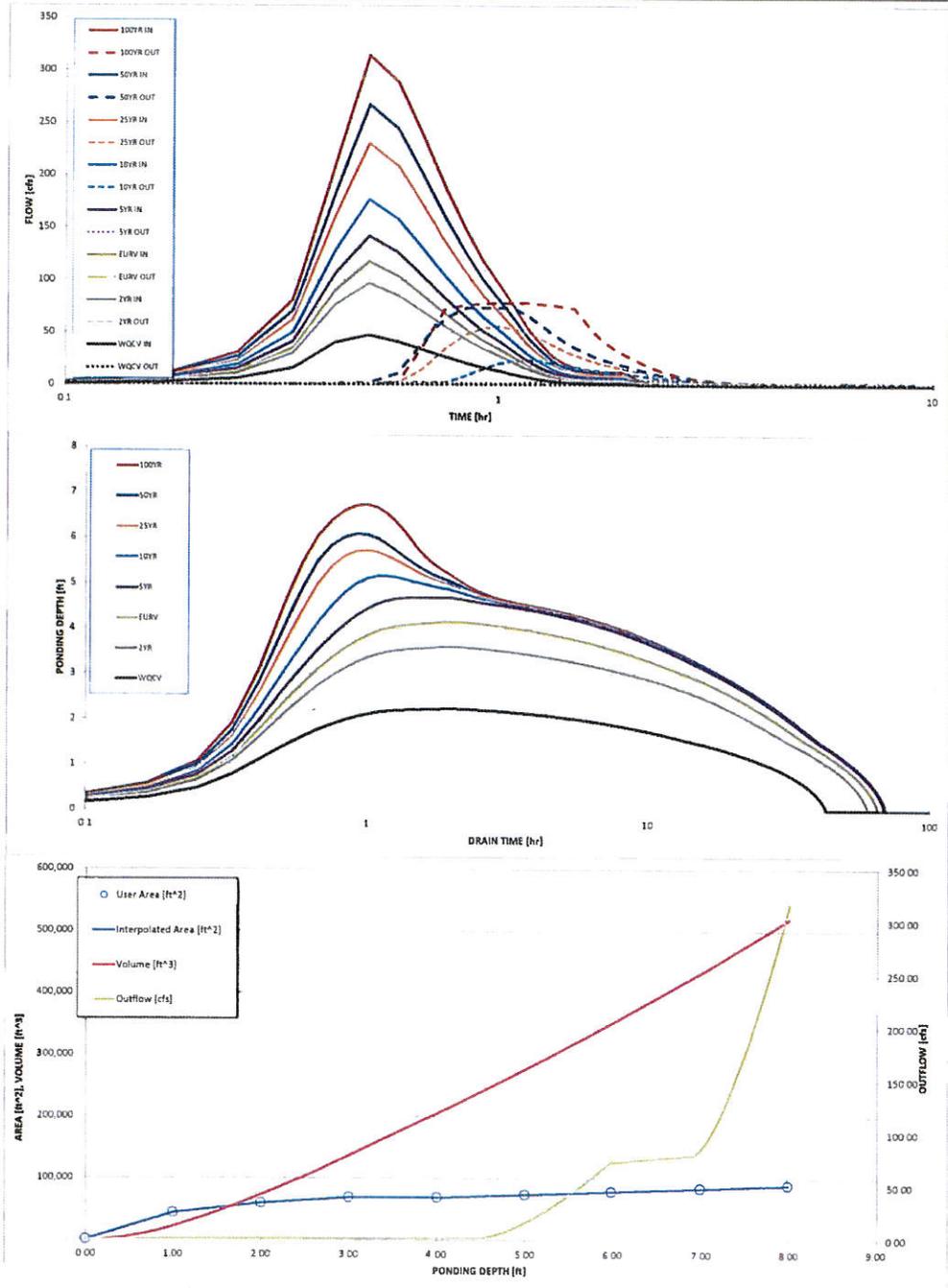


Initial Design for Full Spectrum Detention Basins

Storm Inflow Hydrograph

SOURCE	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK
TIME	WQCV [cfs]	2 Year [cfs]	EURV [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
0 05	0 07	0 13	0 15	0 17	0 19	0 23	0 26	0 28
0 10	2 25	3 93	4 54	5 22	6 09	7 32	8 10	9 02
0 15	5 85	11 08	13 14	15 52	18 76	23 63	26 86	30 85
0 20	15 97	29 78	35 14	41 29	49 64	62 16	70 41	80 60
0 25	40 49	76 11	90 02	106 07	127 88	160 71	182 42	209 29
0 30	47 62	97 16	117 81	142 37	176 91	230 95	267 81	314 43
0 35	41 59	85 83	104 51	126 87	158 80	209 69	244 78	289 56
0 40	33 93	70 16	85 51	103 92	130 15	171 90	200 72	237 56
0 45	27 14	56 00	68 22	82 87	103 69	136 69	159 45	188 52
0 50	21 45	44 41	54 16	65 87	82 52	108 94	127 18	150 50
0 55	16 98	35 08	42 79	52 04	65 20	86 10	100 54	119 00
1 00	13 79	28 31	34 53	42 00	52 61	69 46	81 09	95 97
1 05	10 15	21 34	26 19	32 04	40 41	53 79	63 07	74 96
1 10	7 55	15 63	19 09	23 25	29 20	38 72	45 32	53 76
1 15	5 33	11 21	13 76	16 83	21 23	28 25	33 12	39 37
1 20	3 82	7 92	9 69	11 81	14 84	19 67	23 03	27 33
1 25	2 96	6 11	7 47	9 10	11 41	15 09	17 63	20 89
1 30	2 40	4 93	6 01	7 31	9 15	12 08	14 09	16 67
1 35	2 11	4 30	5 23	6 34	7 92	10 43	12 15	14 35
1 40	2 01	4 08	4 95	5 99	7 45	9 76	11 35	13 26
1 45	1 96	3 97	4 82	5 82	7 24	9 48	11 01	12 96
1 50	1 96	3 97	4 81	5 81	7 22	9 43	10 95	12 87
1 55	1 96	3 97	4 81	5 81	7 22	9 43	10 95	12 87
2 00	1 35	2 90	3 58	4 40	5 58	7 47	8 79	10 48
2 05	0 79	1 68	2 07	2 54	3 21	4 32	5 09	6 08
2 10	0 46	0 97	1 20	1 48	1 88	2 52	2 96	3 54
2 15	0 25	0 52	0 65	0 80	1 01	1 36	1 60	1 91
2 20	0 12	0 27	0 33	0 41	0 53	0 72	0 85	1 02
2 25	0 04	0 09	0 12	0 15	0 20	0 28	0 34	0 41
2 30	0 00	0 00	0 01	0 01	0 02	0 04	0 05	0 07
2 35	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
2 40	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
2 45	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
2 50	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
2 55	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 05	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 10	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 15	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 20	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 25	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 30	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 35	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 40	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 45	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 50	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
3 55	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 05	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 10	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 15	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 20	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 25	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 30	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 35	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 40	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 45	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 50	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
4 55	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 05	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 10	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 15	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 20	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 25	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 30	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 35	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 40	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 45	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 50	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
5 55	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
6 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00

Final Design for Full Spectrum Detention Basins



Final Design for Full Spectrum Detention Basins

Storm Inflow Hydrograph

SOURCE	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK	WORKBOOK
TIME	WQCV [cfs]	2 Year [cfs]	EURV [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]
0:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0:05	0.07	0.13	0.15	0.17	0.19	0.23	0.26	0.28
0:10	2.25	3.93	4.54	5.22	6.09	7.32	8.10	9.02
0:15	5.85	11.08	13.14	15.52	18.76	23.63	26.86	30.85
0:20	15.97	29.78	35.14	41.29	49.64	62.16	70.41	80.60
0:25	40.49	76.11	90.02	106.07	127.88	160.71	182.42	209.29
0:30	47.62	97.16	117.81	142.37	176.91	230.95	267.81	314.43
0:35	41.59	85.83	104.51	126.87	158.80	209.69	244.78	289.56
0:40	33.93	70.16	85.51	103.92	130.15	171.90	200.72	237.56
0:45	27.14	56.00	68.22	82.87	103.69	136.69	159.45	188.52
0:50	21.45	44.41	54.16	65.87	82.52	108.94	127.18	150.50
0:55	16.98	35.08	42.79	52.04	65.20	86.10	100.54	119.00
1:00	13.79	28.31	34.53	42.00	52.61	69.46	81.09	95.97
1:05	10.15	21.34	26.19	32.04	40.41	53.79	63.07	74.96
1:10	7.55	15.63	19.09	23.15	29.20	38.72	45.31	53.76
1:15	5.33	11.21	13.76	16.83	21.23	28.25	33.12	39.37
1:20	3.82	7.92	9.69	11.81	14.84	19.67	23.03	27.33
1:25	2.86	6.11	7.47	9.10	11.41	15.09	17.63	20.89
1:30	2.40	4.93	6.01	7.31	9.15	12.08	14.09	16.67
1:35	2.11	4.30	5.23	6.34	7.92	10.43	12.15	14.35
1:40	2.01	4.08	4.95	5.99	7.45	9.76	11.35	13.36
1:45	1.96	3.97	4.82	5.82	7.24	9.48	11.01	12.96
1:50	1.96	3.97	4.81	5.81	7.22	9.43	10.95	12.87
1:55	1.96	3.97	4.81	5.81	7.22	9.43	10.95	12.87
2:00	1.95	2.90	3.58	4.40	5.58	7.47	8.79	10.48
2:05	0.79	1.68	2.07	2.54	3.21	4.32	5.09	6.08
2:10	0.46	0.97	1.20	1.48	1.88	2.52	2.96	3.54
2:15	0.25	0.52	0.65	0.80	1.01	1.36	1.60	1.91
2:20	0.12	0.27	0.33	0.41	0.53	0.72	0.85	1.02
2:25	0.04	0.09	0.12	0.15	0.20	0.28	0.34	0.41
2:30	0.00	0.00	0.01	0.01	0.02	0.04	0.05	0.07
2:35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2:40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4:55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5:35	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.00
5:40	0.00	0.33	0.33	0.33	0.00	0.00	0.00	0.00
5:45	0.00	0.33	0.00	0.33	0.33	0.00	0.00	0.00
5:50	0.00	0.33	0.33	0.00	0.00	0.00	0.00	0.00
5:55	0.00	0.00	0.00	0.33	0.33	0.00	0.00	0.00
6:00	0.00	0.33	0.33	0.00	0.00	0.00	0.00	0.00

POND VOLUMES

Westminster Mall Redevelopment

Proposed East Pond

OUTLET ELEVATION=5444.44

CONTOUR	AREA (SF)	VOLUME (CF)	SUM VOLUME (CF)	VOLUME (ACRE-FT)
5444.5	0			
5445	25222.8829	4203.81	4203.81	0.10
5446	43463.9886	33932.37	38136.18	0.88
5447	59236.9718	51147.41	89283.59	2.05
5448	68669.7114	63895.29	153178.88	3.52
5449	68669.7114	68669.71	221848.59	5.09
5450	73576.0053	71108.75	292957.34	6.73
5451	78590.2312	76069.35	369026.69	8.47
5452	83704.9929	81134.18	450160.86	10.33
5453	88920.2906	86299.51	536460.37	12.32

	VOLUME	ELEVATION
WATER QUALITY VOLUME REQ'D =	2.00	5446.96
EURV VOLUME (INCLUDES WQ)=	4.96	5448.92
100YR VOLUME REQ'D (INCLUDES WQ)=	9.45	5451.53
10 YR RELEASE (CFS)=	15.04	
100YR RELEASE (CFS)=	78.44	

NOTE:

1-FOOT OF FREEBOARD GIVES TOP OF POND ELEVATION:

5452.53

ORIFICE CALCULATIONS

DETENTION POND - EAST POND

Formulas

$$(3) = \arccos \left[\frac{(2) - (1)}{(2)} \right]$$

$$(4) = (3) - \sin(3) * \cos(3)$$

$$(5) = (2)^2 * (4)$$

$$(6) = (5) / 144$$

$$(7) = \text{pipe inv} + (2)$$

DATE: 05/20/14

$$(8) = \text{WSEL} - (7) + \left[\frac{2}{3} * (2) * \sin(3)^3 / (4) \right]$$

$$(9) = 0.6 * (6) * [2 * g * (8)]^{0.5}$$

CALCULATIONS IN RADIANS

Structure ID =

INLET

POND

Storm Event =

100 year

input

RELEASE RATE =

78.44

5451.53 Water Surface Elev (WSEL)

36.00 Pipe Diam (in)

5444.44 Invert

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Inv to Plate (in)	Pipe Radius (in)	alpha (rad)	alpha - sin(Alpha)* cos(alpha) (rad)	Area (sq in)	Area (sq ft)	Spring Elev	Head H (ft)	Q (cfs)
0.50	18	0.236251	0.008693	2.82	0.020	5445.94	7.07	0.26
1.00	18	0.334896	0.024485	7.93	0.055	5445.94	7.04	0.70
1.50	18	0.411138	0.044790	14.51	0.101	5445.94	7.02	1.29
2.00	18	0.475882	0.068662	22.25	0.155	5445.94	6.99	1.97
2.50	18	0.533345	0.095542	30.96	0.215	5445.94	6.97	2.73
3.00	18	0.585686	0.125043	40.51	0.281	5445.94	6.94	3.56
3.50	18	0.634184	0.156876	50.83	0.353	5445.94	6.92	4.47
4.00	18	0.679674	0.190810	61.82	0.429	5445.94	6.89	5.42
4.50	18	0.722734	0.226656	73.44	0.510	5445.94	6.87	6.44
5.00	18	0.763786	0.264253	85.62	0.595	5445.94	6.84	7.49
5.50	18	0.803149	0.303464	98.32	0.683	5445.94	6.82	8.59
6.00	18	0.841069	0.344165	111.51	0.774	5445.94	6.79	9.71
6.50	18	0.877743	0.386246	125.14	0.869	5445.94	6.77	10.89
7.00	18	0.913333	0.429611	139.19	0.967	5445.94	6.74	12.09
7.50	18	0.947970	0.474168	153.63	1.067	5445.94	6.72	13.32
8.00	18	0.981765	0.519832	168.43	1.170	5445.94	6.70	14.58
8.50	18	1.014814	0.566529	183.56	1.275	5445.94	6.67	15.86
9.00	18	1.047198	0.614186	199.00	1.382	5445.94	6.65	17.16
9.50	18	1.078986	0.662732	214.73	1.491	5445.94	6.62	18.47

10.00	18	1.110242	0.712106	230.72	1.602	5445.94	6.60	19.82
10.50	18	1.141021	0.762246	246.97	1.715	5445.94	6.58	21.18
11.00	18	1.171371	0.813094	263.44	1.829	5445.94	6.55	22.54
11.50	18	1.201337	0.864593	280.13	1.945	5445.94	6.53	23.93
12.00	18	1.230959	0.916689	297.01	2.063	5445.94	6.50	25.33
12.50	18	1.260274	0.969331	314.06	2.181	5445.94	6.48	26.73
13.00	18	1.289316	1.022470	331.28	2.301	5445.94	6.46	28.16
13.50	18	1.318116	1.076054	348.64	2.421	5445.94	6.43	29.56
14.00	18	1.346703	1.130037	366.13	2.543	5445.94	6.41	31.00
14.50	18	1.375105	1.184372	383.74	2.665	5445.94	6.39	32.44
15.00	18	1.403348	1.239012	401.44	2.788	5445.94	6.36	33.85
15.50	18	1.431457	1.293914	419.23	2.911	5445.94	6.34	35.29
16.00	18	1.459455	1.349032	437.09	3.035	5445.94	6.32	36.74
16.50	18	1.487366	1.404322	455.00	3.160	5445.94	6.29	38.16
17.00	18	1.515212	1.459742	472.96	3.284	5445.94	6.27	39.59
17.50	18	1.543015	1.515248	490.94	3.409	5445.94	6.25	41.04
18.00	18	1.570796	1.570796	508.94	3.534	5445.94	6.23	42.47
18.50	18	1.598578	1.626345	526.94	3.659	5445.94	6.20	43.87
19.00	18	1.626381	1.681851	544.92	3.784	5445.94	6.18	45.29
19.50	18	1.654226	1.737269	562.88	3.909	5445.94	6.16	46.71
20.00	18	1.682137	1.792560	580.79	4.033	5445.94	6.14	48.12
20.50	18	1.710136	1.847679	598.65	4.157	5445.94	6.12	49.52
21.00	18	1.738244	1.902579	616.44	4.281	5445.94	6.09	50.87
21.50	18	1.766487	1.957220	634.14	4.404	5445.94	6.07	52.24
22.00	18	1.794889	2.011554	651.74	4.526	5445.94	6.05	53.60
22.50	18	1.823477	2.065539	669.23	4.647	5445.94	6.03	54.94
23.00	18	1.852276	2.119122	686.60	4.768	5445.94	6.01	56.28
23.50	18	1.881318	2.172260	703.81	4.888	5445.94	5.99	57.60
24.00	18	1.910633	2.224902	720.87	5.006	5445.94	5.97	58.89
24.50	18	1.940255	2.276999	737.75	5.123	5445.94	5.95	60.17
25.00	18	1.970222	2.328500	754.43	5.239	5445.94	5.93	61.43
25.50	18	2.000572	2.379347	770.91	5.354	5445.94	5.91	62.67
26.00	18	2.031350	2.429486	787.15	5.466	5445.94	5.89	63.87
26.50	18	2.062606	2.478860	803.15	5.577	5445.94	5.87	65.06
27.00	18	2.094395	2.527408	818.88	5.687	5445.94	5.85	66.23
27.50	18	2.126778	2.575063	834.32	5.794	5445.94	5.83	67.36
28.00	18	2.159827	2.621760	849.45	5.899	5445.94	5.81	68.46
28.50	18	2.193623	2.667426	864.25	6.002	5445.94	5.79	69.54
29.00	18	2.228260	2.711982	878.68	6.102	5445.94	5.77	70.58
29.50	18	2.263849	2.755346	892.73	6.200	5445.94	5.76	71.65
30.00	18	2.300524	2.797428	906.37	6.294	5445.94	5.74	72.61
30.50	18	2.338444	2.838129	919.55	6.386	5445.94	5.72	73.54
31.00	18	2.377806	2.877339	932.26	6.474	5445.94	5.70	74.42
31.50	18	2.418858	2.914936	944.44	6.559	5445.94	5.69	75.33
32.00	18	2.461919	2.950783	956.05	6.639	5445.94	5.67	76.12
32.50	18	2.507409	2.984717	967.05	6.716	5445.94	5.66	76.93
33.00	18	2.555907	3.016549	977.36	6.787	5445.94	5.65	77.68
33.50	18	2.608247	3.046051	986.92	6.854	5445.94	5.63	78.31

34.00	18	2.665710	3.072931	995.63	6.914	5445.94	5.62	78.92
34.50	18	2.730455	3.096803	1003.36	6.968	5445.94	5.61	79.47
35.00	18	2.806696	3.117108	1009.94	7.013	5445.94	5.60	79.91
35.50	18	2.905341	3.132899	1015.06	7.049	5445.94	5.59	80.25
36.00	18	3.141593	3.141593	1017.88	7.069	5445.94	5.59	80.47

DESIGN AIDS

Table 502
Time-Intensity-Frequency Tabulation
for the Rational Method

Rainfall Intensity
(in/hr)/duration

Frequency	5-min	10-min	15-min	30-min	60-min
2-year	3.48	2.70	2.28	1.58	1.00
5-year	4.92	3.84	3.24	2.24	1.42
10-year	5.88	4.56	3.84	2.66	1.68
50-year	8.16	6.36	5.36	3.72	2.35
100-year	9.48	7.32	6.16	4.28	2.71

I. One-hr Precipitation Values for Metro Denver Area

Return period in years	2	5	10	50	100
Depth in inches	0.93	1.35	1.61	2.20	2.60

II. Recommended Runoff Coefficients for Metro Denver

Land Use or Surface Characteristics	Percent Imper- vulosity
Business:	
Commercial areas	95
Neighborhood areas	85
Residential:	
Single-family	*
Multifamily (detached)	60
Multifamily (attached)	75
Half-acre lot or larger	*
Apartments	80
Industrial:	
Light areas	80
Heavy areas	60
Parks, cemeteries:	5
Playgrounds:	10
Schools:	50
Railroad yard areas:	15
Undeveloped areas:	
Historical Flow Analysis	2
Greenbelts agricultural Off-site flow analysis (when land use not defined)	45
Streets:	
Paved	100
Gravel (packed)	40
Driveways and sidewalks:	90
Roofs:	90
Lawns, sandy soil	0
Lawns, clayey soil	0

*Refer to Figures RO-3 through RO-5 in Runoff Chapter of USDCM.

Runoff Coefficient vs. Watershed Imperviousness

Based on Runoff Coefficient estimating equation published by Urbonas, et.al. (1990) & WEF (1998)

Basic equation for NRCS Soil Types C & D:

$$C_{CD} = K_{CD} + (0.858 * i^3 - 0.786 * i^2 + 0.774 * i + 0.04)$$

Basic equation for NRCS Soil Type A:

$$C_A = K_A + (1.31 * i^3 - 1.44 * i^2 + 1.135 * i - 0.12)$$
 in which use values for $C_A > 0$

In which: $i = I_w/100$, imperviousness ratio

I_w = watershed imperviousness in percent

C_A = Runoff Coefficient for NRCS Soil Type A

K_A = Correction factor for C_A when the storm return period is greater than 2-years

C_{CD} = Runoff Coefficient for NRCS Soil Types C and D

K_{CD} = Correction factor for C_{CD} when the storm return period is greater than 2-years

NRCS Soil Types	Values of Correction Factors K_{CD} & K_A					
	Storm Return Period					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
C & D	0.00	$[-0.10 * i + 0.11]$	$[-0.18 * i + 0.21]$	$[-0.28 * i + 0.33]$	$[-0.33 * i + 0.40]$	$[-0.39 * i + 0.46]$
A	0.00	$[-0.08 * i + 0.09]$	$[-0.13 * i + 0.17]$	$[-0.19 * i + 0.24]$	$[-0.22 * i + 0.28]$	$[-0.25 * i + 0.32]$

Imperv. Ratio (i)	Values of Runoff Coefficient C_{CD}						Values of Runoff Coefficient C_A					
	Type C and D NRCS Hydrologic Soil Groups						Type A NRCS Hydrologic Soils Group					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
0.00	0.04	0.15	0.25	0.37	0.44	0.50	-0.12	-0.03	0.05	0.12	0.16	0.20
0.05	0.08	0.18	0.28	0.39	0.46	0.52	-0.07	0.02	0.10	0.16	0.20	0.24
0.10	0.11	0.21	0.30	0.41	0.48	0.53	-0.02	0.06	0.14	0.20	0.24	0.28
0.15	0.14	0.24	0.32	0.43	0.49	0.54	0.02	0.10	0.17	0.23	0.27	0.30
0.20	0.17	0.26	0.34	0.44	0.50	0.55	0.06	0.13	0.20	0.26	0.30	0.33
0.25	0.20	0.28	0.36	0.46	0.52	0.56	0.09	0.16	0.23	0.29	0.32	0.35
0.30	0.22	0.30	0.38	0.47	0.53	0.57	0.13	0.19	0.25	0.31	0.34	0.37
0.35	0.25	0.33	0.40	0.48	0.54	0.57	0.16	0.22	0.28	0.33	0.36	0.39
0.40	0.28	0.35	0.42	0.50	0.55	0.58	0.19	0.25	0.30	0.35	0.38	0.41
0.45	0.31	0.37	0.44	0.51	0.56	0.59	0.22	0.27	0.33	0.37	0.40	0.43
0.50	0.34	0.40	0.46	0.53	0.57	0.60	0.25	0.30	0.35	0.40	0.42	0.45
0.55	0.37	0.43	0.48	0.55	0.59	0.62	0.29	0.33	0.38	0.42	0.45	0.47
0.60	0.41	0.46	0.51	0.57	0.61	0.63	0.33	0.37	0.41	0.45	0.47	0.50
0.65	0.45	0.49	0.54	0.59	0.63	0.65	0.37	0.41	0.45	0.49	0.51	0.53
0.70	0.49	0.53	0.57	0.62	0.66	0.68	0.42	0.45	0.49	0.53	0.54	0.56
0.75	0.54	0.58	0.62	0.66	0.69	0.71	0.47	0.50	0.54	0.57	0.59	0.61
0.80	0.60	0.63	0.66	0.70	0.73	0.74	0.54	0.56	0.60	0.63	0.64	0.66
0.85	0.66	0.68	0.71	0.75	0.78	0.79	0.61	0.63	0.66	0.69	0.70	0.72
0.90	0.73	0.75	0.77	0.80	0.83	0.83	0.69	0.71	0.73	0.76	0.77	0.79
0.95	0.80	0.82	0.84	0.87	0.89	0.89	0.78	0.80	0.82	0.84	0.85	0.86
1.00	0.89	0.90	0.92	0.94	0.96	0.96	0.89	0.90	0.92	0.94	0.95	0.96

Notes: For Type B Soils, use the average of coefficients C_{CD} and C_A .

When the Runoff Coefficient in above table is < 0, use 0.

When compiling the Runoff Coefficient for different soil types, use the table values above regardless if they are < 0.

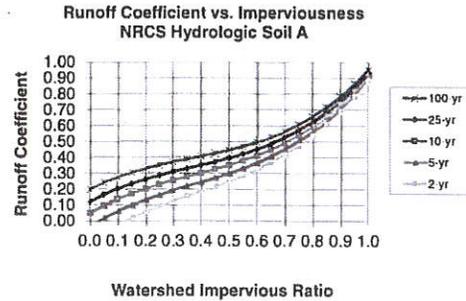
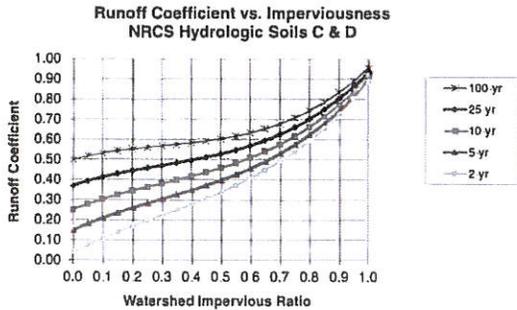
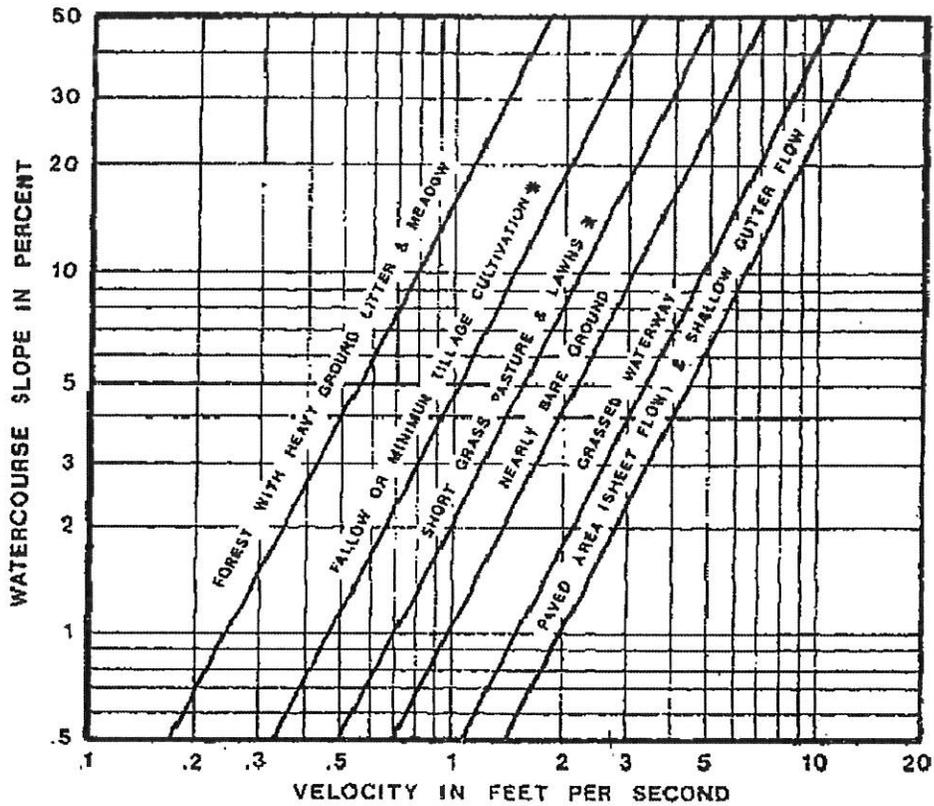
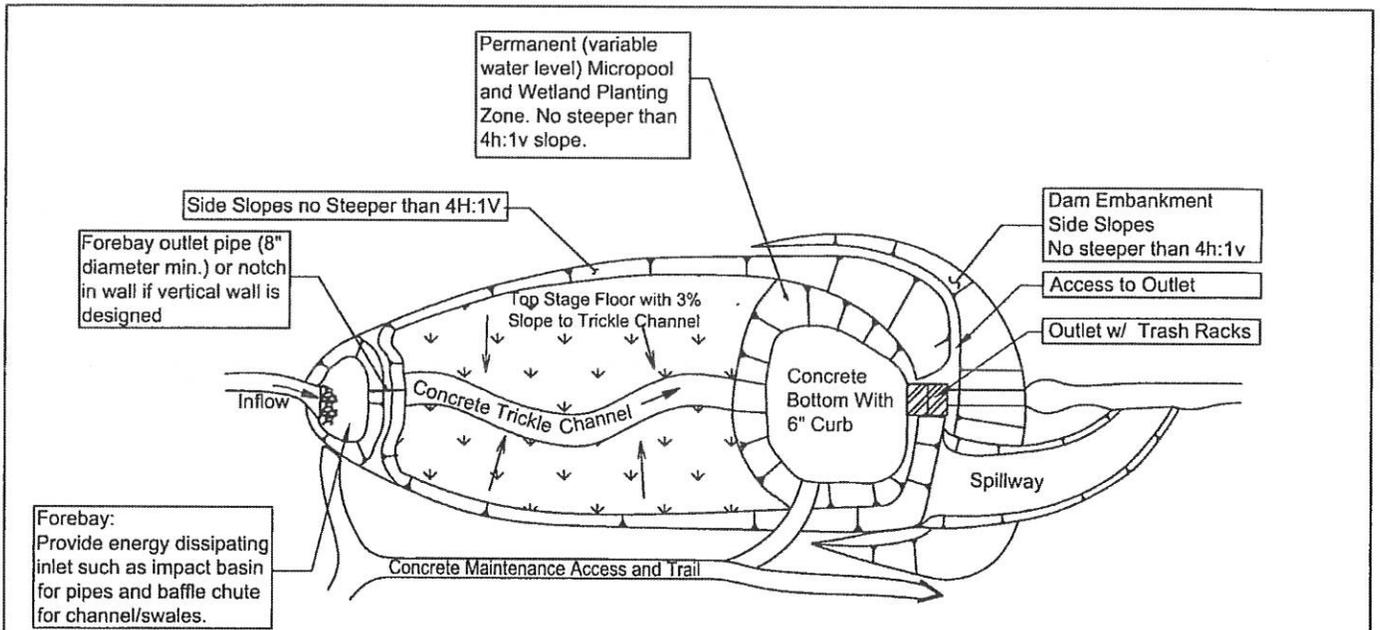


Figure 602
 Estimate of Average Flow Velocity
 For Use with the Rational Method Formula

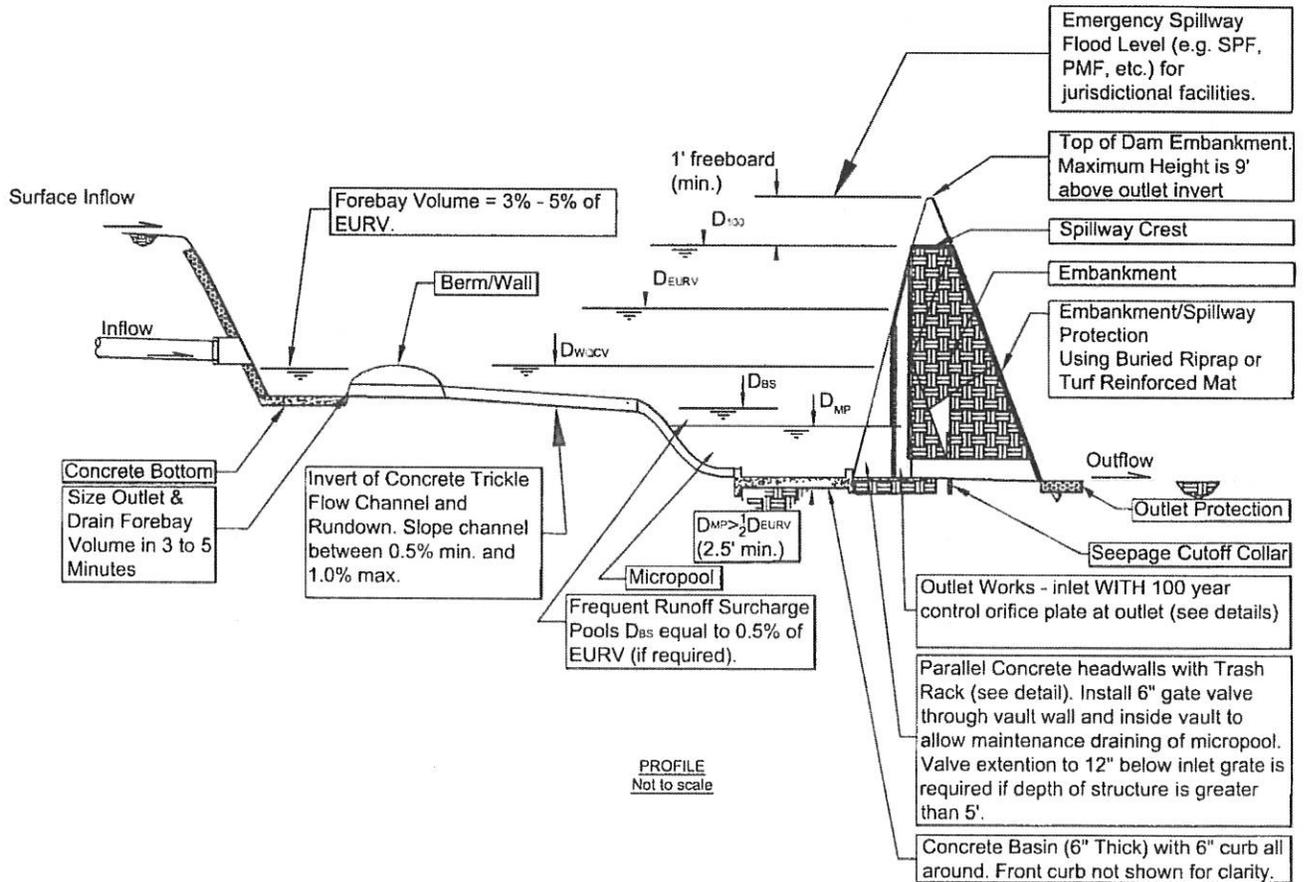


*Most Frequently Occurring "Undeveloped" Land Surfaces in the Denver Region

Reference: "Urban Hydrology For Small Watersheds", Technical Release No. 55, USDA, SCS Jan. 1975.



PLAN
Not to scale



PROFILE
Not to scale

Note: This Extended Detention Basin is intended for use for ponds with a contributing drainage basin area of 5 impervious acres or more. This detail (except revisions by the City of Westminster) courtesy of the Urban Drainage and Flood Control District.



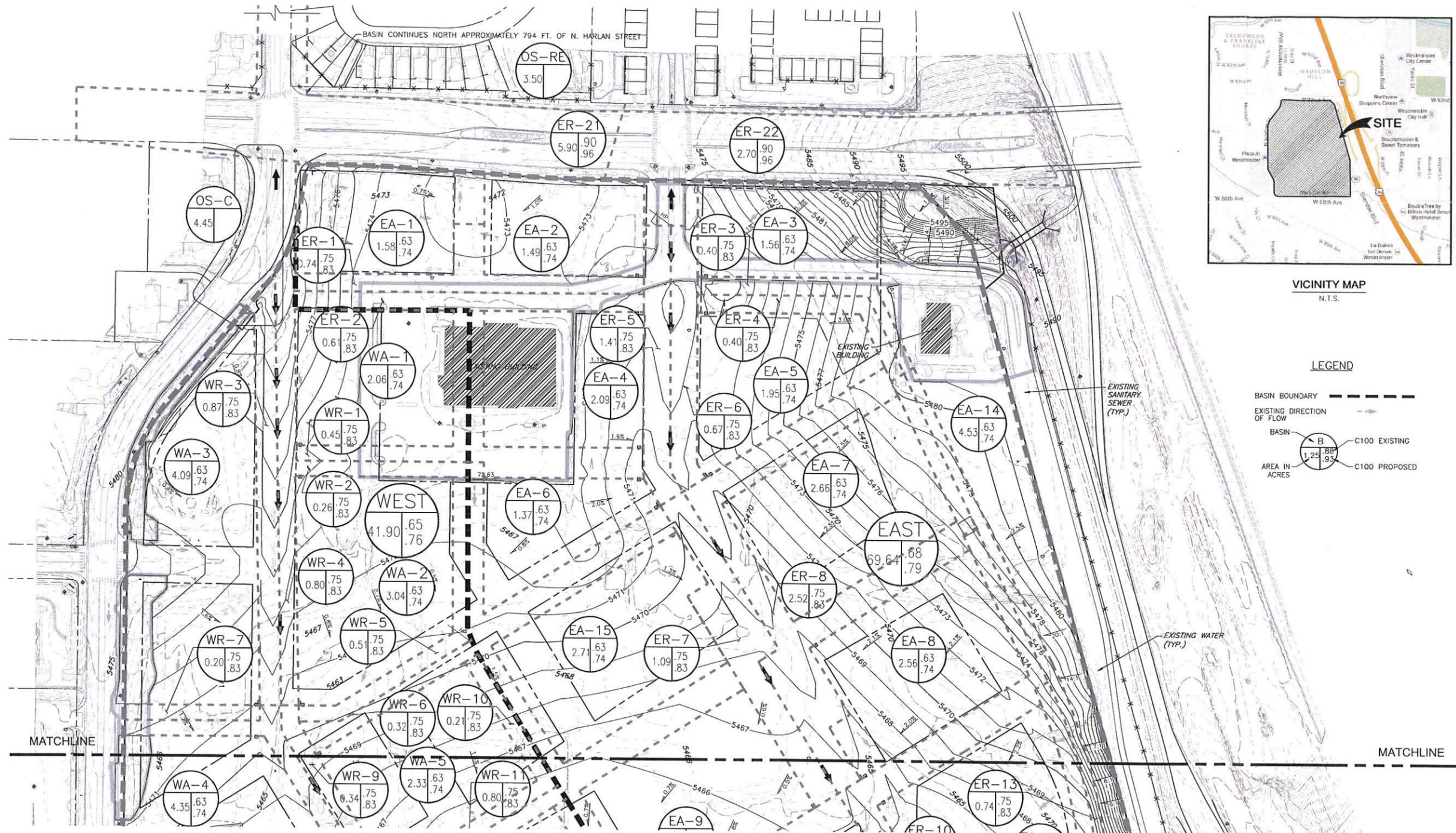
CITY of WESTMINSTER
4800 WEST 92ND AVENUE
WESTMINSTER, COLO. 80031

EXTENDED DETENTION BASIN
BASINS LARGER THAN 5
IMPERVIOUS ACRES

DATE: JANUARY 2011

SHEET ST 11

PLOT DATE: Tuesday, July 29, 2014 1:55 PM LAST SAVED BY: GRAVES
 DRAWING LOCATION: c:\Tuttle\13.0463-Downtown Westminster\ENG\DRAINAGE\Phase II\Drainage Plan Phase II.dwg



VICINITY MAP
N.T.S.

LEGEND

- BASIN BOUNDARY - - - - -
- EXISTING DIRECTION OF FLOW ->
- BASIN C100 EXISTING
- AREA IN ACRES C100 PROPOSED

- NOTES:**
- EXISTING STORM SEWER AND INLETS WILL BE REUSED WHEN FEASIBLE.
 - BASIN WEST RUNOFF IS ROUTED AND CONVEYED TO EXISTING DETENTION POND W, LOCATED SOUTH OF THE SITE, ADJACENT TO THE LOWE'S.
 - EXISTING DETENTION POND E WILL BE RELOCATED TO THE WEST TO ACCOMMODATE THE PROPOSED SHERIDAN BOULEVARD REALIGNMENT.
 - NO ADDITIONAL DETENTION IS REQUIRED AS LONG AS THE COMPOSITE PERCENT IMPERVIOUS TRIBUTARY TO EACH POND REMAINS AT OR BELOW EXISTING LEVELS.

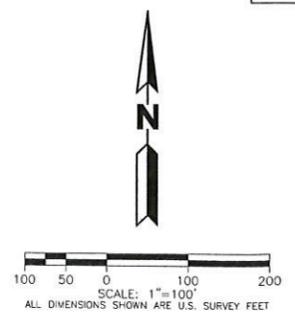
BASIS OF BEARINGS
 BEARINGS ARE BASED ON THE CITY OF WESTMINSTER GIS HORIZONTAL CONTROL NETWORK. BEARINGS HAVE BEEN ROTATED 0°08'32" COUNTERCLOCKWISE FROM THE PLATTED BEARINGS FOR WESTMINSTER MALL 2ND AMENDMENT PLAT, RECORDED AT RECEPTION NO. 86016236.

DRAINAGE SUB-BASINS WERE NOT UPDATED TO MATCH REVISED ROAD LAYOUT. SUBJECT TO CHANGE WITH FUTURE PHASE III DRAINAGE STUDY.



CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.



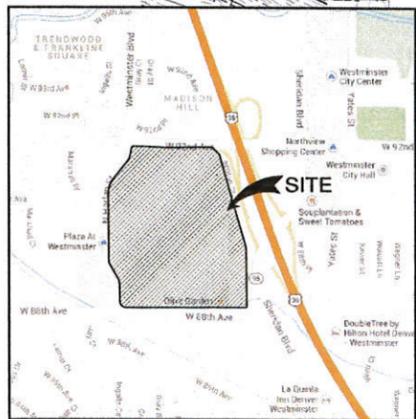
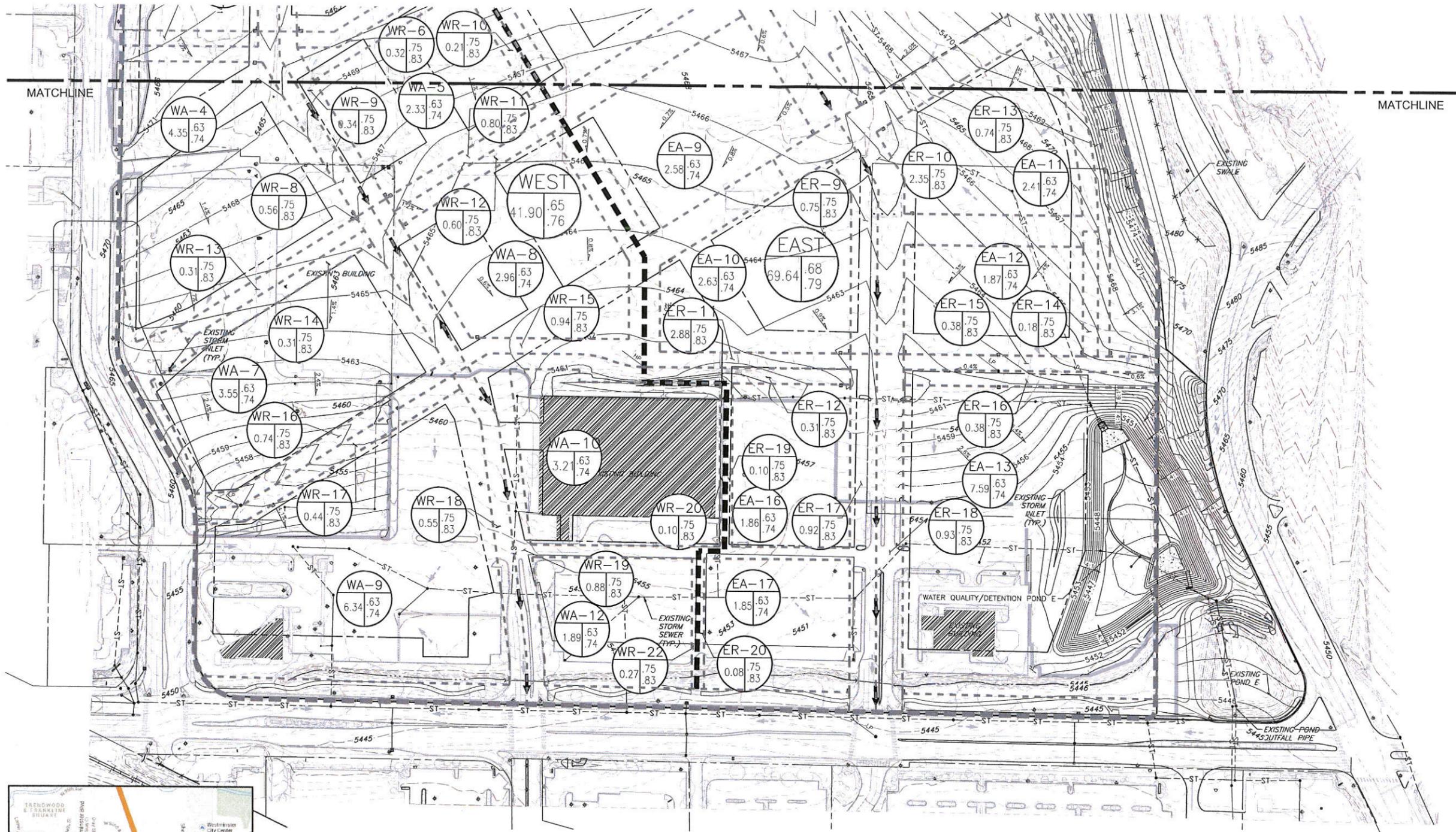
DOWNTOWN WESTMINSTER PHASE II PLAN
 DRAINAGE PLAN - NORTH

No.	Issue / Revision	Date	Name
1	SUBMITTED TO CITY OF WESTMINSTER	06.12.2014	DL
2	CONSTRUCTION ISSUE	07.24.2014	DL

Job Number	13.0463
Project Manager	D. LOVATO
Design By	G. GRAVES
Drawn By	G. GRAVES
Principal In Charge	D. LOVATO

Sheet Number: **D1**

PLOT DATE: Tuesday, July 29, 2014 1:53 PM LAST SAVED BY: GRAVES
 DRAWING LOCATION: G:\Tuttle\13.0463-Downtown Westminster\ENG\DRAINAGE\Phase II\Drainage Plan Phase II.dwg



VICINITY MAP
N.T.S.

NOTES:

- EXISTING STORM SEWER AND INLETS WILL BE REUSED WHEN FEASIBLE.
- BASIN WEST RUNOFF IS ROUTED AND CONVEYED TO EXISTING DETENTION POND W, LOCATED SOUTH OF THE SITE, ADJACENT TO THE LOWE'S.
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BEARINGS ARE BASED ON THE CITY OF WESTMINSTER GIS HORIZONTAL CONTROL NETWORK. BEARINGS HAVE BEEN ROTATED 00°08'32" COUNTERCLOCKWISE FROM THE PLATTED BEARINGS FOR WESTMINSTER MALL 2ND AMENDMENT PLAT, RECORDED AT RECEPTION NO. 86016236.

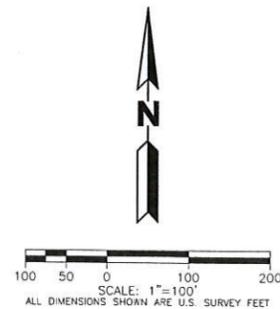
EXISTING POND W LOCATED TO THE SOUTH, BEHIND THE LOWE'S

DRAINAGE SUB-BASINS WERE NOT UPDATED TO MATCH REVISED ROAD LAYOUT. SUBJECT TO CHANGE WITH FUTURE PHASE III DRAINAGE STUDY.



CALL 811 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE OR EXCAVATE FOR MARKING OF UNDERGROUND MEMBER UTILITIES

MARTIN/MARTIN ASSUMES NO RESPONSIBILITY FOR UTILITY LOCATIONS. THE UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS, HOWEVER, THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE SIZE, MATERIAL, HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.



LEGEND

- BASIN BOUNDARY - - - - -
- EXISTING DIRECTION OF FLOW ->
- BASIN - B
- AREA IN ACRES - 1.25, .88, 1.93
- C100 EXISTING
- C100 PROPOSED



DOWNTOWN WESTMINSTER PHASE II PLAN
DRAINAGE PLAN - SOUTH

No.	Issue / Revision	Date	Name
1	SUBMITTED TO CITY OF WESTMINSTER	06.12.2014	DL
2	CONSTRUCTION ISSUE	07.24.2014	DL

Job Number: 13.0463
 Project Manager: D. LOVATO
 Design By: G. GRAVES
 Drawn By: G. GRAVES
 Principal in Charge: D. LOVATO

Sheet Number:

D2