City of Bellevue
Parks & Community Services Department

MEMORANDUM

Date: January 12, 2016

To: Parks & Community Services Board

From: Franz Loewenherz, Senior Transportation Planner, 452-4077, floewenherz@bellevuewa.gov

Subject: Bellevue Pedestrian and Bicycle Implementation Initiative
No Board action requested

Staff will provide the Parks & Community Services Board an overview of a proposed Rapid Implementation Program (RIP) as it relates to Bellevue's priority bicycle network. The proposed RIP addresses the Task 2 (Bicycle Priority Corridor Report) deliverable in the City of Bellevue's Pedestrian and Bicycle Implementation Initiative (PBII) Scope of Work (see attachment 1). This initiative, and associated Scope of Work, were approved by the Transportation Commission at its May 28, 2015 workshop. Staff will invite the Parks & Community Services Board to review and discuss the Draft Map of RIP Candidate Projects and the Draft Description of RIP Candidate Project Categories (see attachments 2 and 3). No specific action is requested from the Board at this time.

Background

The City of Bellevue's Pedestrian and Bicycle Implementation Initiative (PBII) aims to generate better data on pedestrian and bicycle activity, crashes, and infrastructure, and to build partnership opportunities to advance the implementation of non-motorized projects and programs. PBII is being overseen by the City's Transportation Commission whose scope of work is guided by Council approved program principles.

On January 12, 2016 staff will provide Parks & Community Services Board members a status report on PBII focusing on the wikimap outreach effort, stakeholder interviews, and facility design work associated with Task 2 – the development of a Bicycle Priority Corridor Design Report (see attachment 1). In Task 2, the PBII Team is revisiting the priority bicycle corridor network established in the 2009 Pedestrian and Bicycle Transportation Plan Report (see page 92) to:

1. Evaluate the range of bicycle facility types that could be applied along missing segments in the priority bicycle corridor network, including innovative interim treatments as well as more permanent best practice facilities;

2. Consider the pros and cons and the associated maintenance needs of each alternative treatment;
3. Develop planning level cost estimates and priorities to inform the next round of updates to Bellevue's Transportation Facilities Plan and Capital Investment Program and implementation opportunities through other programs (e.g., Pavement Overlay).

When finalized in Q1 2016, the Bicycle Priority Corridor Design Report aims to realize a network of bicycle facilities that are connected, protected, and can be implemented rapidly. Consistent with Bellevue City Council guidance, this Connected, Protected, Rapid (CPR) theme is defined as follows:

- **Connected:** Prioritizes a connected network that "fills the gaps" in lieu of piece-meal implementation.
- **Protected:** Promotes physically separated facilities to minimize conflicts between roadway users where possible.
- **Rapid:** Identifies early-win opportunities that can be implemented quickly to advance project delivery.

The Bicycle Priority Corridor Design Report will include a Rapid Implementation Program (RIP) budget proposal paired with an annual work plan specifying when each of the CPR-themed bicycle corridor projects will be implemented. This task responds to the proposed 2016-2027 Transportation Facilities Plan that includes a reserve allocation of $22.5M for projects determined via the ongoing PBII process.

Current Status

At its January 12 meeting, staff will invite the Parks & Community Services Board to review and discuss the Draft Map of RIP Candidate Projects and the Draft Description of RIP Candidate Project Categories (see attachments 2 and 3). These documents reflect staff's current thinking on which bicycle corridor segments could be implemented quickly (within a two-year budget cycle) and which corridor segments require a longer-term implementation timeline.

Next Steps

As additional field work is conducted and design details developed for the RIP corridor segments, the Transportation Department will make refinements to the Draft Map of RIP Candidate Projects and the Draft Description of RIP Candidate Project Categories. At future Transportation Commission briefings staff will bring forward updated maps, design details, and cost estimates that will inform the RIP budget proposal for 2017-18.

Draft Motion

No motion is brought forward at this time - for discussion only.

Attachments

1. Attachment 1 – Pedestrian and Bicycle Implementation Initiative Scope of Work (Task 2)
2. Attachment 2 – Draft Map of RIP Candidate Projects
3. Attachment 3 – Draft Description of RIP Candidate Project Categories

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COMPREHENSIVE PBII SCOPE OF WORK

approved by the City of Bellevue Transportation Commission

May 28, 2015

BELLEVUE PEDESTRIAN & BICYCLE IMPLEMENTATION INITIATIVE

TASK 2: BICYCLE PRIORITY CORRIDOR DESIGN REPORT

Introduction

A recurring message throughout Bellevue's 2009 Pedestrian and Bicycle Transportation Plan development process—from the online survey effort, focus-groups sessions, public meetings, and online interactive map—was the need for improved connectivity to facilitate cross-city bicycle trips. There is broad public agreement that many of the existing bicycle facilities in Bellevue, particularly on-street segments, have been implemented in a piecemeal approach and therefore do not provide a connected and easily navigable cycling network.

Responding to this public input, Bellevue's 2009 Plan designates five east/west and six north/south cross-city priority bicycle corridors (see Figure 8) that link together the numerous corridor segments documented in the bicycle project list. Regardless of the type of facility implemented on a given corridor or corridor segment—whether bicycle lanes on major streets, multi-use off-street paths, shared lanes on low traffic streets, or some other context-appropriate solution—the components of the priority bicycle corridors must be well connected and provide safe and reasonably direct ways to travel between destinations throughout the city for people of all ages and abilities. Together, these priority bicycle corridors represent a continuous network that promotes connections to surrounding jurisdictions and creates links between neighborhoods within Bellevue.

In Task 2, the PBII Team will revisit the priority bicycle corridor network established in the 2009 Plan to:

1. evaluate the range of bicycle facility types that could be applied along missing segments in the priority bicycle corridor network, including innovative interim treatments as well as more permanent best practice facilities;
2. consider the pros and cons and the associated maintenance needs of each alternative treatment;
3. develop planning level cost estimates and priorities to inform the next round of updates to Bellevue's Transportation Facilities Plan and Capital Investment Program.

At the on-set of this effort, the PBII Team will consult with Cascade Bicycle Club and Feet First to arrive at a preferred public engagement strategy to inform the Bicycle Priority Corridor Design Report. Decisions about when and how to involve the public will be guided by a clear sense of purpose. A wide range of options (e.g. online questionnaire, focus group, mapping interface, engagement-oriented bike ride, crowd-sourced photo-sharing strategy, virtual open house, and coordinating with community blogs and advocacy group blogs) will be considered to

solicit the public's input on existing gaps in the priority bicycle corridor network and evaluation of various bicycle facility design options.

The outreach effort associated with Task 2.4 may also include a "pop-up event" to provide people an opportunity to see and evaluate the scale and appearance of some of the potential bicycle facility improvements under consideration. Because not everyone has seen a protected bikeway, a temporary street reconfiguration can provide people a first-hand experience that may be difficult to replicate through any other means. The PBII Team will review the experiences of other jurisdictions that have employed the pop-up technique when considering this form of community engagement strategy.

Collaboration with external partners will be critical to successfully planning, funding, and ultimately implementing improvements along many priority bicycle corridors—particularly those connecting to existing or planned regional facilities outside of Bellevue city limits. As such, the PBII Team will coordinate with WSDOT, PSRC, the Mountains to Sound Greenway Trust, neighboring jurisdictions, and advocacy organizations throughout Task 2. **Completion of PBII Task 2 is anticipated in 2016**.

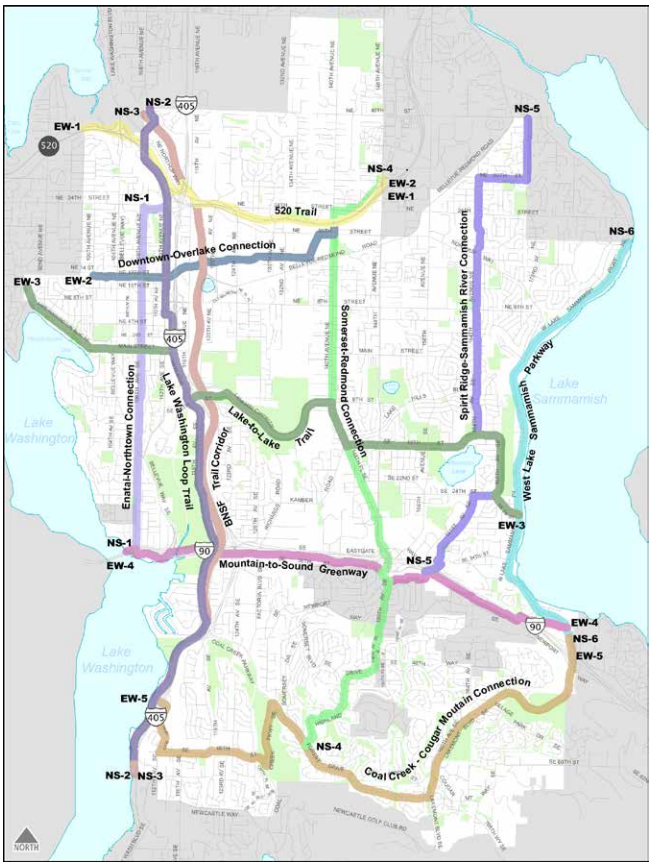

Figure 1. (top) Six typical on-street bicycle facility typologies. Depicted in order of least to greatest level of protection afforded to people on bikes (left to right) are shared lanes (sharrows), standard bike lanes, buffered bike lanes, parking-protected bike lanes, delineator/planter-protected bike lanes, and raised curb-separated bike lanes.

Figure 2. (above) Map of Bellevue's priority bicycle corridors as identified in the 2009 Pedestrian and Bicycle Transportation Plan.

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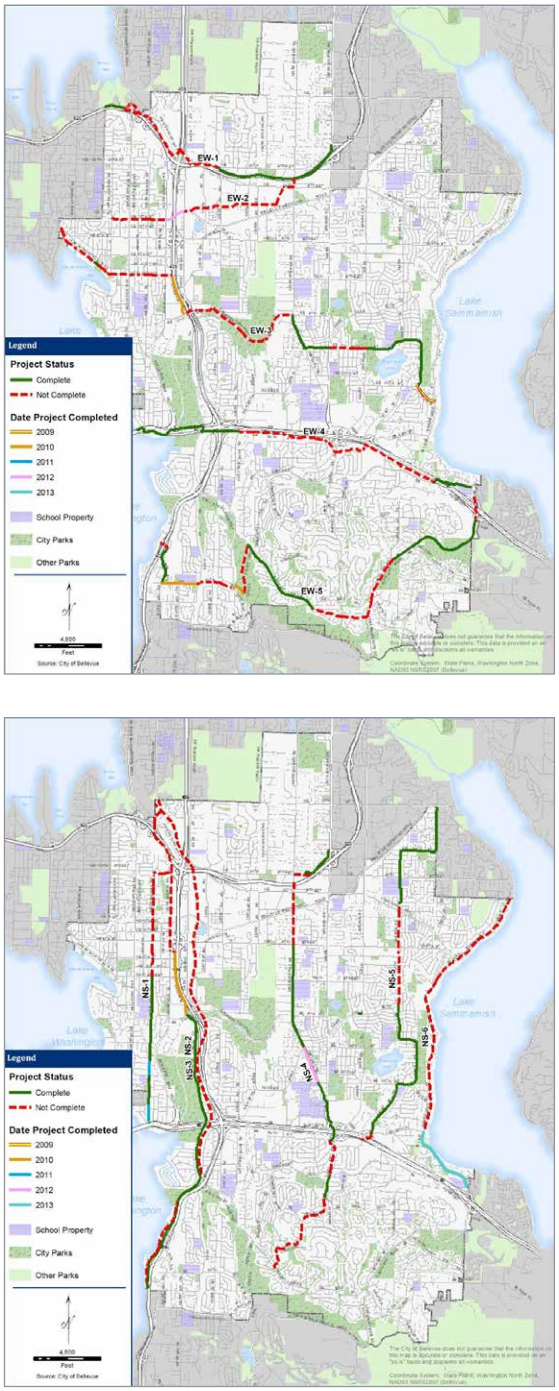


Figure 3. Maps of the completion status of the E-W (top) and N-S (bottom) priority bicycle corridors between 2009–2013. Solid green lines reflect completed segments.

Task 2.1 – Progress Report

In Task 2.1, the PBII Team will summarize the progress made to date implementing the priority bicycle corridor network and improvements anticipated through 2021. Annual progress reports from 2009 through 2013, available at the following links, document all pedestrian and bicycle facilities implemented throughout Bellevue (a 2014 report is in production):

- 2013 Pedestrian and Bicycle Program Progress Report
- 2012 Pedestrian and Bicycle Program Progress Report
- 2011 Pedestrian and Bicycle Program Progress Report
- 2010 Pedestrian and Bicycle Program Progress Report
- 2009 Pedestrian and Bicycle Program Progress Report

The time-horizon of this implementation progress report will extend to the year 2021 to account for priority bicycle corridor network improvements anticipated through funded projects in Bellevue's Capital Investment Program (2015–2021).

Deliverable *– A technical memo documenting the City of Bellevue's realized and anticipated progress completing the priority bicycle corridor network through 2021.*

Task 2.2 – Existing Conditions Assessment

In Task 2.2, the PBII Team will review and refine the Priority Bicycle Corridor Network Report produced in 2009. Updating this report will help the team develop a familiarity with the opportunities and constraints to improve conditions along the remaining gaps in the priority bicycle corridor network. Because selecting the appropriate bikeway facility (Task 2.4) depends on context, the existing conditions report will document the following attributes of the roadway segments under consideration:

- Road function (arterial, local, etc.)
- Traffic volume
- Speed
- Crashes (derived from Task 1.1)
- Traffic mix (e.g. percentage of freight trucks)
- Expected users (e.g. is one type of user expected to dominate, such as children bicycling to school)
- Road conditions (lane widths, total roadway width, conditions at intersections, and parking demand)
- Frequency of driveways and access points
- Topography
- Existing and proposed adjacent land uses

The report will also include public comments and photos showing how the corridor is experienced by people bicycling. Once the PBII Team understands existing conditions and community needs, getting to a set of facility recommendations (Task 2.4) is a matter of examining the places where potential for positive change exists.

Deliverable *– A technical memo that updates the priority bicycle corridor network report, reflecting the opportunities and constraints to improve conditions along the remaining gaps in the priority bicycle corridor network.*

Task 2.3 – Development of Evaluation Criteria

Task 2.3 involves developing evaluation criteria to help focus the process of creating, selecting, and prioritizing facility recommendations (Task 2.4). Evaluation criteria may include:

- Overcoming barriers: How well does the project overcome a barrier in the priority bicycle network?
- System connectivity: To what extent does the project fill a missing gap in the priority bicycle network?
- Transit connectivity: To what extent does the project fill a missing gap in access to Bellevue's Frequent Transit Network?
- Community support: To what degree do residents desire the proposed project? This criterion takes into account oral and written feedback.
- User generator: To what degree will the project likely generate transportation or recreational usage based on population, corridor aesthetics, etc.?
- Land uses: How many user generators does the project connect to within reasonable walking or bicycling distance, such as schools, parks, employment centers, etc.?
- Safety and comfort: Can the project potentially improve bicycling at locations with perceived or documented safety issues?
- Regional benefit: To what degree does the project offer potential benefits to the wider regional community by offering opportunities for increased connectivity to surrounding communities, other regional bikeways, etc.?
- Cost: What financial resources are needed to implement the project? Is the project cost prohibitive, or can it be implemented through grant funding or other opportunities?
- Ease of implementation: How difficult will it be to implement the project? This criterion takes into account constraints like topography, existing development, presence or lack of available right-of-way, and environmental and political issues.

After arriving at a set of evaluation criteria, the PBII Team will translate this information into a bicycle facility selection process to inform decisions about bikeway design (Task 2.4). In approaching this task, the PBII Team will consider similar toolkits employed elsewhere in the nation (e.g., Washington County, OR and San Gabriel Valley, CA).

Deliverable *– A technical memo documenting the evaluation criteria and facility selection process that will be used in Task 2.4 to create, select, and prioritize bicycle facility recommendations associated with the eleven priority corridors established in 2009.*

Task 2.4 – Bicycle Facility Recommendations

Until recently, planners and engineers in the US overwhelmingly limited themselves to just two types of bikeways: conventional bicycle lanes and off-street pathways or trails. However, inspiration from European roadway design and domestic innovations in a handful of pioneering cities has expanded the range of bikeway facilities that are now accepted by transportation officials and promoted by citizens, businesses, and organizations in cities of all sizes across the country. In response to these fast evolving best practices, the Federal Highway Administration (FHWA) issued a memorandum in 2013 expressing its support for flexibility in bicycle facility design and in May 2015 published their own Separated Bike Lane Planning and Design Guide. Knowledge of the diversity of facility types and their applications, as put forth in the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* and by FHWA—among a variety of other design resources for bicycle facility treatments, as cataloged by the Pedestrian and Bicycle Information Center (PBIC) Design Resource Index—will help the PBII Team apply appropriate treatments in appropriate contexts.

In Task 2.4, the PBII Team will revisit and refine the 2009 Pedestrian and Bicycle Transportation Plan proposed facility recommendations along the remaining gaps in the priority bicycle corridor network. For example, the 2009 Plan might suggest a bicycle shoulder improvement along a missing gap that would benefit from increased physical separation (e.g. a buffered or protected bicycle lane). The 2009 Plan acknowledges that:

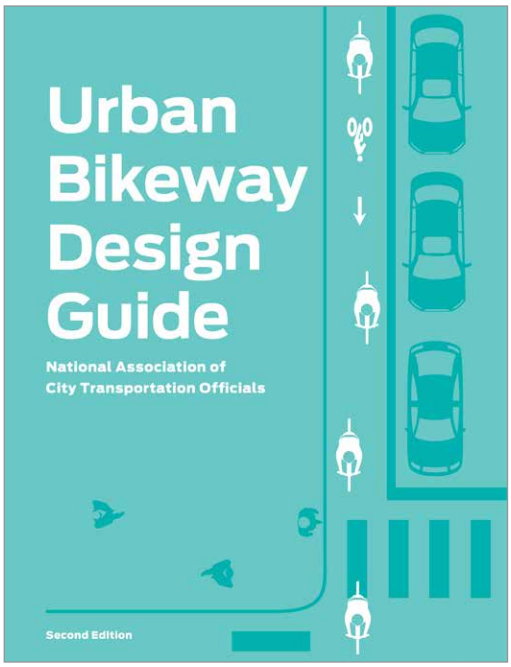


Figure 4. NACTO *Urban Bikeway Design Guide*.

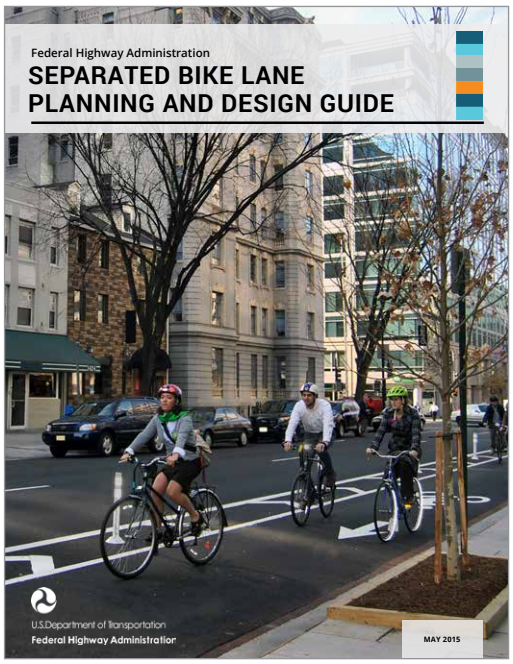


Figure 5. FHWA *Separated Bike Lane Planning and Design Guide*.

"These projects are conceptual and the final details of design will be developed as the projects proceed further along in the implementation process." In revisiting the 2009 Plan facility recommendations, the PBII Team will evaluate existing conditions information, synthesize and interpret feedback from stakeholders and the public, balance the needs of various roadway users and their associated design requirements, gauge political realities in the community, leverage the best technologies and innovative tools that are successful elsewhere and applicable to Bellevue, and assess financial limitations simultaneously.

Traditional Strengths, Weaknesses, Opportunities, and Constraints (SWOT) exercises may provide a starting point for identifying initial possibilities and limitations. One of the most important factors to consider when designing for bicyclists is determining the type of bicycle user the facility is meant to attract. User preference varies with bicyclist's skill level, trip purpose, and individual characteristics, and no simple rule exists for determining what all users prefer. However, as the level of separation from other roadway users (i.e. motor vehicles) increases, a facility becomes more attractive to a wider range of bicycle users—making bicycling a more viable and preferred transportation mode for more people. Consistent with Bellevue City Council guidance, the PBII Team will strive to promote physically separated facilities to minimize conflicts between roadway users where possible.

After identifying potential bikeway design options for the remaining gaps in the network, the PBII Team will employ the evaluation criteria developed in Task 2.3 to select and prioritize facility recommendations. In some cases, it might be necessary in the evaluation of bicycle facility options to undertake a more detailed review of existing conditions than what is outlined in Task 2.2 (e.g. property research, physical features, and environmental conditions). The PBII Team will develop preliminary cost estimates for construction and a proper level of maintenance for the proposed bicycle facility recommendations identified in Task 2.4.

Deliverable *– A technical memo documenting the PBII Team's evaluation (based on traffic volumes and speeds, surrounding land uses, expected users, roadway and lane widths, the frequency of driveways, and other factors identified in Task 2.3) of various bicycle facility options for the remaining gaps in the priority bicycle corridor network, noting the positive or negative influences to their implementation.*

Task 2.5 – Bicycle Priority Corridor Design Report

In Task 2.5, the PBII Team will produce a Bicycle Priority Corridor Design Report with detailed bikeway design sheets for each of the improvements identified in Task 2.4. Consistent with Bellevue City Council guidance, the report will provide a level of detail that will facilitate quick and effective implementation. Of course, simple pavement marking retrofits will be the easiest to implement because they do not require property acquisition or pavement reconstruction. Implementation will become more difficult as the project delivery method changes (i.e., new construction, reconstruction, resurfacing).

The corridor sheets in the Design Report will identify specific bikeway improvements proposed for implementation. Each of the bikeway sheets will be disaggregated by individual projects that, once implemented, will collectively develop a cohesive priority bicycle corridor network. The factors that will be used to delineate natural project boundaries include: proposed facility type, implementation barriers like parking and travel lane removal, a gap in the bikeway network, presence of an existing bike facility that needs improvement, project cost, and funding status.

Each bikeway design sheet will document the general characteristics of the corridor (traffic environment, corridor length, major connections, etc.), a "fly-through" description of the route, and cross sections of some key segments in each project. Cross-sections will be displayed relative to the existing condition to conceptualize how a street segment will look in the future. The PBII Team will consider leveraging the Esri CityEngine street modeling tool to graphically represent and analyze the proposed bicycle facility recommendations arising from this assessment.

The Bicycle Priority Corridor Design Report will identify both immediate and longer-term opportunities for improving conditions and will consider how early actions and investments lay a foundation for future improvements. A phasing plan beyond the initial five-year implementation period will outline how recommended actions will progress over time, which will be done by categorizing actions as short- or long-term priorities. A detailed annual work plan benefits the City of Bellevue by providing clear direction that enables monitoring of progress.

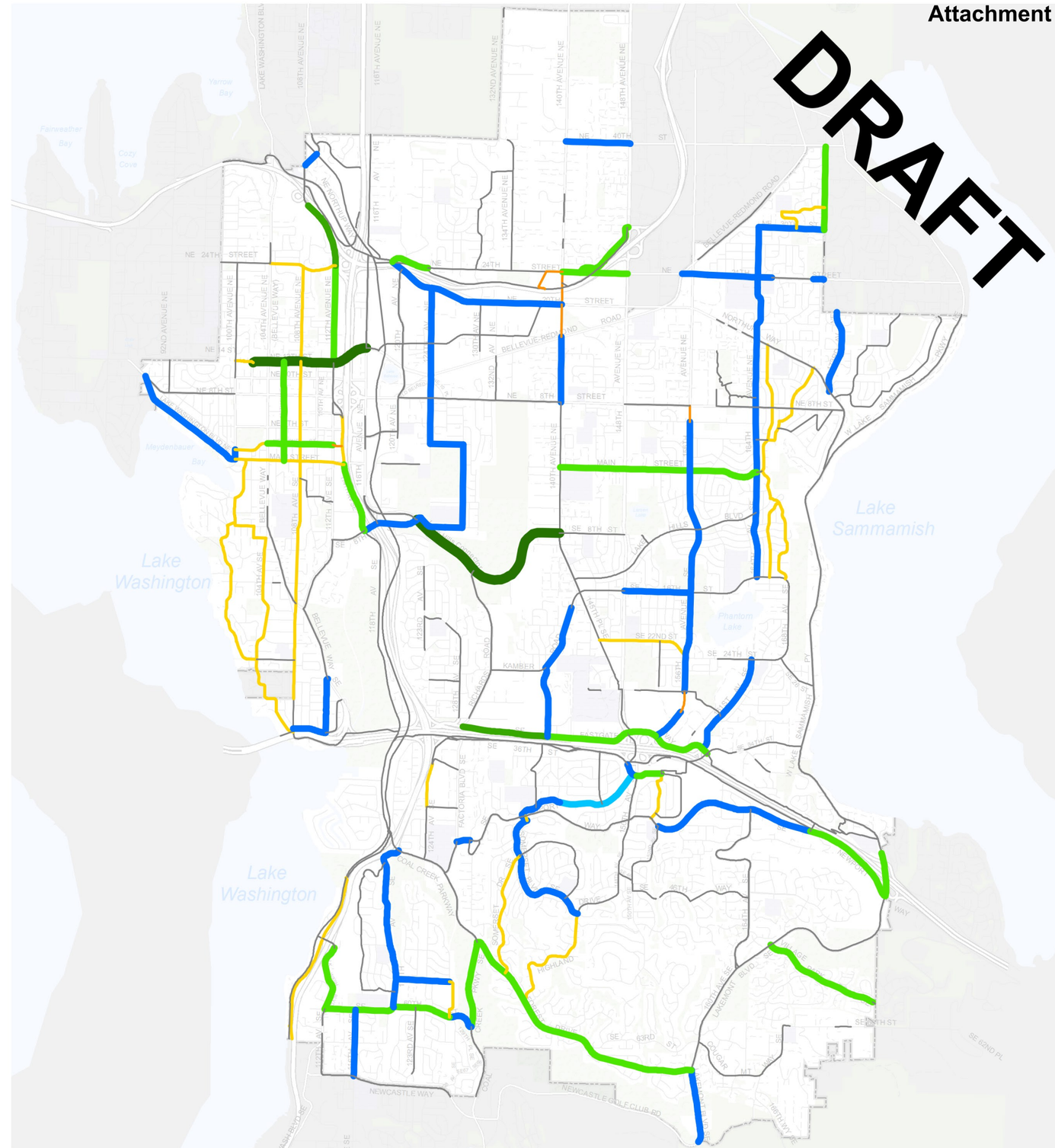
Deliverable *– A report documenting short- and long-term facility investments, including planning level cost estimates, that aims to improve the priority bicycle corridor network based on the analysis conducted in the previous tasks. The final report produced in Task 2.5 will inform Task 4.1, which will include a budget proposal(s) paired with an annual work plan specifying when each of the prioritized bicycle corridor facilities will be implemented.*

Attachment 2

BELLEVUE PEDESTRIAN & BICYCLE IMPLEMENTATION INITIATIVE

PBII Rapid Implementation Program

Draft Candidate Projects, 12.17.2015



Legend

RIP_Project_Type

- 0 - No Change
- 1 - Neighborhood Greenway
- 2 - Bike Lane, Ped Path, Sharrow
- 3 - Bike Lane, Both Sides
- 5 - Protected Bike Lane, Both Sides
- 6 - Protected Bike Lane, Both Sides, Ped Path
- 8 - Offstreet Path
- 9 - Green-Backed Sharrow

PBII Rapid Implementation Program
Draft Candidate Projects

This document summarizes the attributes associated with geographic information systems (GIS) data related to Bellevue's Bicycle Network, including existing facilities, candidate projects, and potential future conditions. This documentation and the associated GIS data are draft and currently still in development and subject to change.

Existing Bicycle Facility Typologies

Existing GIS data, originally developed between 2007–2009 for the 2009 Pedestrian and Bicycle Transportation Plan, categorizes Bellevue bicycle facilities as follows:

- **Type A**: Off-Street Path
- **Type B**: Bike Lane
- **Type C**: Bike Shoulder with fog line (lane + shoulder > 14')
- **Type D**: Shared Shoulder, with fog line, also used by parked vehicles and/or pedestrians (lane + shoulder > 14')
- **Type E**: Wide Outside Lane (> 14')
- **Type F**: Wide Outside Lane (> 14'), shared; also used by parked vehicles and/or pedestrians
- **Type G**: Sharrow

In the years since adoption of the 2009 Plan, bicycle facility design in the United States has advanced significantly. Protected bicycle lanes have been implemented in cities across the country, and agencies and organizations including the FHWA and NACTO have published design guidelines for bicycle facility types that were rare and hence not considered in Bellevue's 2009 Plan.

Although the fundamental vision established by the 2009 Plan remains relevant today, some of the details regarding projects proposed then warrant updating for consistency with the state of the industry to provide a high-quality bicycle environment in Bellevue. The facility typologies listed above have therefore been consolidated and new typologies have been added to reflect the evolution of bicycle facilities in the United States and the intent of the PBII to introduce these best practices to Bellevue where they are contextually appropriate.

The following facility typology codes are used in PBII GIS data to represent existing bicycle facilities in Bellevue. Note that dimensions are typical and may vary in some locations with physical constraints.

0. **None** – There are no bicycle facilities of any kind present on the roadway
1. **Wide/Shared Lanes, One or Both Sides –** Streets with wide outside lanes (> 14'), shared shoulders also used by parked cars and/or pedestrians (lane + shoulder > 14'), or bike shoulders with a fog line (lane + shoulder > 14')
2. **Conventional Sharrows –** General purpose travel lanes with shared lane markings, which are typically used to indicate bicycle routes and preferred bicycle lane position.
4. **Conventional Bike Lane, One Side** – 5-foot bike lane on one side of the street, typically implemented as a climbing lane
6. **Conventional Bike Lanes, Both Sides –** 5-foot bike lanes on both sides of the street
11. **Offstreet Path, One Side –** 10-12 foot bi-directional multi-use offstreet path

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Description of RIP Candidate Project Categories

The following categories describe the various types of candidate projects being considered for inclusion in the PBII Rapid Implementation Program (RIP). The associated list of candidate projects is preliminary and subject to revision following additional examination of existing roadway characteristics and physical and administrative limitations.

Some gaps in the Priority Bicycle Corridor (PBC) network have already been identified as unsuitable for rapid project deployment and are therefore excluded from the candidate project list. Additional candidate projects along PBCs may be eliminated following further review. Similarly, other segments of the Bicycle Network may be added to the list of candidate projects, particularly if they would provide readily-implementable alternatives to difficult-to-implement Priority Bicycle Corridor routes.

Categories 1 and 2 are candidate projects that would create new bicycle facilities in locations where none presently exist. Categories 3 and 4 are candidate projects that would enhance the quality of existing bicycle facilities by adding physical protection and improving visibility. Categories 5, 6, and 7 are candidate projects that cannot be accomplished with low-cost treatments or without first completing an extensive design process. Categories 8, 9, and 10 would use traffic calming strategies to improve the safety of bicycling in mixed traffic on low-volume, low-speed roads.

1. **PBC Gaps – Paint & Post Improvements**
   - These candidate projects would use low-cost treatments to implement new bicycle facilities along segments of Priority Bicycle Corridors where no bicycle facilities of any kind currently exist. “Paint & Post” improvements could include roadway lane restriping (i.e. “Paint”) and, for protected bike lane projects, the installation of flexible delineator posts, jersey barriers, planter boxes, or other vertical objects (i.e. “Posts”) as deemed contextually appropriate to each particular project.
   - All PBC gaps were initially identified as “Paint & Post Improvements” candidate projects as a starting point for candidate project consideration. Many have since been reclassified following review of roadway characteristics and other limitations.
   - *Candidate Project Example:* 112th Ave NE from NE 12th St to NE 24th St
2. **Bicycle Network Gaps – Paint & Post Improvements**
   - These candidate projects would use low-cost treatments to implement new bicycle facilities along segments of roadways identified as part of the Bicycle Network by the 2009 Ped-Bike Plan. Segments that provide direct connections to Priority Bicycle Corridors, major transit stops, schools, libraries, parks, and community centers, or that could serve as interim alignments for Priority Bicycle Corridors while more extensive design and construction along those corridors is completed, are of particular priority.
   - *Candidate Project Example:* SE Eastgate Way from Richards Rd to 150th Ave SE
3. **PBC Upgrades – Paint & Post Improvements**
   - These candidate projects would use low-cost treatments to upgrade existing bicycle facilities along Priority Bicycle Corridors to provide a safer and more comfortable bicycling experience that appeals to a broader segment of the population. For example, existing conventional bike lanes may be upgraded to protected bike lanes, or shared shoulders/wide outside lanes may be upgraded to conventional bike lanes where sufficient roadway space is available.

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- All PBC segments with existing bicycle facilities were initially identified as candidates for "Paint & Post Improvements" upgrades pending further review of roadway characteristics.
- *Candidate Project Example:* 118th Ave SE from SE 8th St to Newport Key

4. **Bicycle Network Upgrades – Paint & Post Improvements**
   - These candidate projects would use low-cost treatments to upgrade existing bicycle facilities along segments of roadways identified as part of the Bicycle Network to provide a safer and more comfortable bicycling experience that appeals to a broader segment of the population. Segments that provide direct connections to Priority Bicycle Corridors, major transit stops, schools, libraries, parks, and community centers, or that could serve as interim alignments for Priority Bicycle Corridors while more extensive design and construction along those corridors is completed, are of particular priority.
   - *Candidate Project Example:* SE Newport Way from 152nd Ave SE to Lakemont Blvd SE
5. **PBC Gaps – Minor Construction**
   - These candidate projects would require the construction of some new facilities to accommodate the proposed bicycle improvements, such as the widening of an asphalt shoulder or installing a new off-street path. To be considered a "Minor Construction" project, candidates are estimated to cost less than $250,000.
   - *Candidate Project Example:* SE Eastgate Way from 150th Ave SE to SE 35th Pl
6. **PBC Gaps – Major Design/Construction**
   - These candidate projects along segments of Priority Bicycle Corridors would require extensive design, environmental review, and/or construction costs exceeding $250,000.
   - *Candidate Project Example:* Lake Hills Connector from 118th Ave SE to 140th Ave SE
7. **Bike Network Gaps – Major Construction**
   - These candidate projects along segments of the Bicycle Network would require extensive design, environmental review, and/or construction costs exceeding $250,000.
   - *Candidate Project Example:* SE 34th St from 164th Pl SE to West Lake Sammamish Pkwy.
8. **PBC Gaps – Greenway Improvements**
   - These candidate projects would use traffic calming strategies, pavement markings, and wayfinding and other signage to implement bicycle accommodations along segments of Priority Bicycle Corridors where no bicycle facilities currently exist. Unlike candidate projects in categories 1–7, greenway improvements do not provide dedicated roadway space for people on bicycles. These projects are therefore considered only where existing pavement width is too constrained to accommodate dedicated bike lanes, where traffic volumes are low, and where posted speed limits are slow.
   - *Candidate Project Example:* NE 8th St from Main St to Bellevue Way SE
9. **Bike Network Gaps – Greenway Improvements**
   - These candidate projects would use traffic calming strategies, pavement markings, and wayfinding and other signage to implement bicycle accommodations along segments of roadways identified as part of the Bicycle Network by the 2009 Ped-Bike Plan. These projects are considered only where existing pavement width is too constrained to accommodate dedicated bike lanes, where traffic volumes are low, and where posted speed limits are slow.
   - *Candidate Project Example:* 153rd Ave SE from SE 38th St to SE Newport Way

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10. **Alternatives to Bicycle Network**
    - These candidate projects have been included to advance the "Connected" component of the Rapid Implementation Program's intent to deliver "Connected, Protected, Rapid" bicycle improvements. Divergence from the established Bicycle Network is being considered in limited cases because improving the relevant adjacent Bicycle Network routes is not possible in the short-term due to physical, administrative, or temporal limitations. These alternatives may function as suitable and easier-to-implement alternatives to those established corridors.
    - *Candidate Project Example:* 165th/166th Ave from Northup Way to SE 14th St

The following additional categories of street segments are also included in PBII GIS data; however, these categories do not reflect candidate projects. Rather, they highlight other portions of the Bicycle Network and its Priority Bicycle Corridors, some of which already have bicycle facilities of some kind.

Street segments in categories 11 through 14 are not currently being considered as candidate locations for bicycle improvements as part of the Rapid Implementation Program.

11. **PBC Complete – No Changes**
    - These are segments of Priority Bicycle Corridors along which off-street paths exist or major construction projects that include bicycle facilities have recently been completed.
    - *Example:* West Lake Sammamish Pkwy from SE 34th St to 180th Ave SE
12. **Bike Network Complete – No Changes**
    - These are segments of the Bicycle Network along which off-street paths or bicycle lanes on both sides of the street exist and upgrades are not currently being proposed.
    - *Example:* 116th Ave NE from Northup Way to NE 12th St
13. **Long-Term Design / Funded Construction**
    - These are segments of Priority Bicycle Corridors and Bicycle Network routes that are not recommended for improvements through the Rapid Implementation Program because planning or design is currently in progress or funding for construction has already been allocated through the CIP.
    - *Examples:* Mountains to Sound Greenway, Spring Blvd, 120th Ave NE
14. **PBC Gaps – No Project Under Consideration**
    - These are segments of Priority Bicycle Corridors along which no bicycle facilities currently exist but for which no project is currently being considered, typically because improvements could only be made through a major construction project (e.g. roadway widening) that is not currently planned.
    - *Example:* 108th Ave NE from the northern city limits to the Eastside Rail Corridor

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RIP Candidate Project Facility Types

The following are the nine facility types represented by the candidate projects currently being considered. Dimensions are typical and may vary in some locations with physical constraints.

1. **Neighborhood Greenway –** Low-speed, low-traffic streets with sharrows (conventional or green-backed), bicycle wayfinding, intersection treatments where required by cross-traffic conditions, and traffic calming treatments where contextually appropriate
2. **Conventional Bike Lane, One Side; Ped Path, One Side; Sharrow, One Side** – 5-foot bike lane and painted on-street pedestrian path on one side of the street with sharrows on the other side
3. **Conventional Bike Lanes, Both Sides –** 5-foot bike lanes on both sides of the street
4. **Conventional Bike Lanes, Both Sides; On-Street Ped Path, One Side –** As above, plus a painted on-street pedestrian path adjacent to the bike lane on one side of the street
5. **Protected Bike Lanes, Both Sides** – 5–7 foot bike lanes with 1.5–3 foot painted buffers and vertical elements separating the bike lane from vehicle traffic (e.g. flexible delineator posts, C-curbs, planter boxes), with the particular treatment to be determined by vehicle volumes and speeds, design context, and maintenance requirements
6. **Protected Bike Lanes, Both Sides; On-Street Ped Path, One Side** – As above, plus a painted on-street pedestrian path adjacent to the protected bike lane on one side of the street
7. **Two-Way Protected Bikeway, One Side –** 8–12 foot bi-directional bikeway with 1.5–3 foot painted buffers and vertical elements separating the bike lane from vehicle traffic (e.g. flexible delineator posts, C-curbs, planter boxes)
8. **Offstreet Path, One Side –** 10-12 foot bi-directional multi-use offstreet path
9. **Green-Backed Sharrows –** High-visibility shared-lane markings, used along portions of some non-greenway streets where the roadway width is too constrained to incorporate designated bicycle facilities, but much of the rest of the corridor can accommodate bike lanes or better

Preliminary RIP Candidate Project Numbering

The following template describes the preliminary naming convention for all RIP candidate projects:

PBC EW-1.1.2 – Priority Bicycle Corridor, EW-1, Segment 1, Project Facility Type 2

PBC NS-2.2.3 – Priority Bicycle Corridor, NS-2, Segment 2, Project Facility Type 3

BN EGW-3.4 – Bicycle Network, Eastgate Way, Segment 3, Project Facility Type 4

BN 140-4.5– Bicycle Network, 140th Avenue, Segment 4, Project Facility Type 5

ALT 165-5.1 – Alternative Route, 165th Avenue, Segment 5, Project Facility Type 1

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RIP Candidate Project Limitations

The following is the template used to describe existing mainline channelization along a candidate project segment, wherein "mainline" refers to the predominant channelization between intersections:

 # Lanes (**# NB, # SB**); **Shoulders, Both Sides** –
Total number of lanes (Number of NB and SB lanes); shoulders on one or both sides

 # Lanes (**# NB, # SB**); **Shoulders, Some Portions** –
Total number of lanes (Number of NB and SB lanes); shoulders on one or both sides on some segments

 # Lanes (**# EB, # CL, # WB**); **No Shoulders** –
Total number of lanes (Number of EB, Center Left, and WB lanes); No shoulder on either side

RIP Candidate Project Limitations

The following is the current range of limitations that have been identified for current or former candidate projects by the PBII Task 2 Team. These limitations are being documented in geographic information system (GIS) data to assist with the tracking of candidate projects.

These limitations are currently considered to be circumstances that require greater scrutiny and may incur project design complications. Some of these may also come to be considered fatal flaws after further examination by the PBII Task 2 Team and/or discussion with the Transportation Commission.

Physical

- **Constrained Pavement Width** – The roadway is too narrow to incorporate dedicated bicycle facilities, even if vehicle lane widths were reduced and on-street parking (if present) was removed. It is also not possible to eliminate any vehicle turning, travel, or merging lanes, whether because there is already only one lane in each direction or because doing so would have an unacceptably severe negative impact on vehicle LOS, vehicle delay, and/or vehicle queue lengths. This is considered to be a fatal flaw for some candidate projects where other accommodations cannot be made to provide continuous bicycle facilities along a corridor.
- **Requires 10-foot GP Lanes** – It would be necessary to reduce the width of one or more general purpose travel lanes to 10 feet to implement bicycle lanes along some or all of a project segment.
- **Requires Narrow GP Lanes** – It would be necessary to reduce the width of one or more general purpose travel lanes to less than 10 feet to implement bicycle lanes along some or all of a project segment.
- **Requires Elimination of Parking –** It would be necessary to remove on-street parking on one or both sides of the street because the roadway is otherwise too narrow to incorporate dedicated bicycle facilities.
- **Requires Left Turn Lane Removal –** It would be necessary to remove the existing center left turn lane because the roadway is otherwise too narrow to incorporate dedicated bicycle facilities.
- **Requires Right Turn Lane Removal –** It would be necessary to remove the existing right turn lane because the roadway is otherwise too narrow to incorporate dedicated bicycle facilities through the intersection.

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- **Requires Rechannelization –** Similar to the above categories, it would be necessary to revise the channelization of the roadway to incorporate dedicated bicycle facilities. However, in the above cases, there is only one viable rechannelization option. In projects identified with this limitation type, multiple potential rechannelization options exist, which, depending on the location, may include:
    - the elimination of an extra GP lane—that is, where there is an additional lane in one direction than in the other, as on 116th Ave NE prior to rechannelization;
    - the elimination of a GP lane—typically, this would be considered only where a 3-lane reconfiguration could reasonably maintain the capacity of an existing 4-lane section;
    - the elimination of a dedicated turn lane at an intersection approach;
    - the elimination of an on-street parking lane.
- **Requires Shoulder Widening –** It would be necessary to widen the shoulder along some or all of a project segment to have sufficient roadway width to implement dedicated bicycle facilities.
- **Existing Median –** There is an existing median in the roadway, whether concrete, planted, or a pedestrian refuge island, that cannot be changed for "CPR" projects.

Administrative

- **Requires Community Consultation –** If steps were taken to address some of the physical limitations identified, such as the elimination of on-street parking, community consultation would be required before proceeding with the project.
- **Requires Environmental Review –** Projects that create new impervious surfaces, such as the construction of new offstreet paths or the widening of shoulders, may require environmental review if the amount of new paved area exceeds certain thresholds.
- **Requires Speed Limit Reduction –** Some projects may necessitate the reduction of the posted speed limit to ensure that conditions are safe for people on bicycles.
- **Requires Coordination with WSDOT** – Proposed improvements relate to facilities that are owned by WSDOT or that span or impact WSDOT right-of-way.
- **Abuts City Limits** – A street segment either crosses a Bellevue city limit mid-block or is bisected by city limits. This would require coordination with an adjacent jurisdiction to either ensure that facilities continue gracefully across jurisdictional boundaries or, where streets are bisected by boundaries, ensure that both sides of the street receive like treatments.

Temporal

- **Recent Pavement Overlay –** It may not be appropriate to rechannelize roadways that have recently been resurfaced through the Pavement Overlay Program.
- **Recent Project Completion –** It may not be appropriate to rechannelize roadways where CIP projects have recently been completed.
- **Pending Construction –** The final design of a project has been completed and construction is scheduled to begin during the 2016–2019 period.
- **Pending Corridor Study –** Per Transportation Commission recommendation through the Downtown Transportation Plan, a multi-modal corridor study is planned to assess how to best accommodate the needs of various road users. Any candidate projects along these roadway segments should not include bicycle improvements that preclude future changes to the corridor.

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- **Ongoing Design Project –** A project is currently in design. Whether that design includes or precludes bicycle improvements, it may not be appropriate for candidate projects to be advanced for these roadways.
- **Ongoing Planning Process** – A project is currently in an ongoing planning process separate from the PBII.

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RIP Candidate Project Details

- **Transit Access –** The RIP candidate project would improve access to transit for people on bicycles. Candidate projects that qualify provide a connection to a Frequent Transit Network (FTN) bus stop. In this context, FTN refers to those routes that currently operate every 15 minutes or better during the peak, every 30 minutes or better off-peak.
- **Safe Route To School** – The RIP candidate project would improve access to a school
- **Planned Project –** The RIP candidate project is related to a project identified by the 2009 Pedestrian and Bicycle Transportation Plan.
- **Planned Project Priority –** The priority (i.e., high, medium, low) assigned to the 2009 Ped-Bike Plan project associated with the RIP candidate project. Points determining this prioritization were in 2009 assigned for the following characteristics:
    - *Corridor Conditions*
        - System linkage (connectivity to other sidewalk/bikeway facilities)
        - Severity of problem (how many collisions have occurred)
        - Roadway arterial classification
        - Bus stop level ridership (1/4-mile proximity)
    - *Social Justice*
        - Vehicle ownership (%)
        - Below poverty level (%)
        - Under 18, 65 or over (%)
    - *Destination Network*
        - Park proximity (%)
        - School proximity (%)
        - Community center/social service/library proximity (%)
        - Retail proximity (%)
        - Major employment center (Comprehensive Plan)
        - Housing density (Comprehensive Land Use Plan)

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Bicycle Facility Types Resulting from RIP

The following are the twelve facility type codes represented along the Bicycle Network following the implementation of the RIP candidate projects currently being considered. Note that dimensions are typical and may vary in some locations with physical constraints.

0. **None** – There are no bicycle facilities of any kind present on the roadway
1. **Wide/Shared Lanes, One or Both Sides –** Streets with wide outside lanes (> 14'), shared shoulders also used by parked cars and/or pedestrians (lane + shoulder > 14'), or bike shoulders with a fog line (lane + shoulder > 14')
2. **Conventional/Green-Backed Sharrows –** Shared lane markings, typically used to indicate bicycle routes and preferred bicycle lane position. Green-backed sharrows are a design evolution of the same concept and provide greater visibility of the bicycle route.
3. **Neighborhood Greenway –** Low-speed, low-traffic streets with sharrows, traffic calming treatments, and bicycle wayfinding
4. **Conventional Bike Lane, One Side** – 5-foot bike lane on one side of the street, typically implemented as a climbing lane
5. **Conventional Bike Lane, One Side; Ped Path, One Side; Sharrow, One Side** – 5-foot bike lane and painted on-street pedestrian path on one side of the street with sharrows on the other side
6. **Conventional Bike Lanes, Both Sides –** 5-foot bike lanes on both sides of the street
7. **Conventional Bike Lanes, Both Sides; On-Street Ped Path, One Side –** As above, plus a painted on-street pedestrian path adjacent to the bike lane on one side of the street
8. **Protected Bike Lanes, Both Sides** – 5–7 foot bike lanes with 1.5–3 foot painted buffers and vertical elements separating the bike lane from vehicle traffic (e.g. flexible delineator posts, C-curbs, planter boxes), with the particular treatment to be determined by vehicle volumes and speeds, design context, and maintenance requirements
9. **Protected Bike Lanes, Both Sides; On-Street Ped Path, One Side** – As above, plus a painted on-street pedestrian path adjacent to the bike lane on one side of the street
10. **Two-Way Protected Bikeway, One Side –** 8–12 foot bi-directional bikeway with 1.5–3 foot painted buffers and vertical elements separating the bike lane from vehicle traffic (e.g. flexible delineator posts, C-curbs, planter boxes), with the particular treatment to be determined by vehicle volumes and speeds, design context, and maintenance requirements
11. **Offstreet Path, One Side –** 10-12 foot bi-directional multi-use offstreet path

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