Innovative Land Use and Transportation Approaches
What Do We Do?
What Does it Take to Achieve Balanced Transportation Networks and Streets?

✓ Establishing Sound Policy – Complete Streets
✓ Distinguishing Street Functional Classification & Typology
✓ Enhancing Multimodal Street Standards with Land Use Context
  ✓ Street Typologies
  ✓ Transit
  ✓ Bike–Ped Facilities
✓ Utilities
✓ Parking
✓ Master Streets Plan
✓ Regional Travel Model Applications
✓ Re-purposing Streetscape – Breakout Session
Traditional Street Functional Classification & Street Design

Determine Functional Classification

Establish Design Controls

Fit Design Elements

Hierarchy & Functional Class Context

Land Use Context

Design Traffic
- Role of Regional Travel Model
- Understanding Travel Patterns
- Vehicle Types
- Detailed Traffic Analyses

Design Speed
- Target Speed – Min & Max
- Travel Lane Dimensions
- Freight Routes
- Travel Safety
- Speed / Flow Relationship

Street Design Standards
- Geometric (Sight/Stopping Distance)
- Dimensions
- Design Elements (trees, parking, transit stops)
- AASHTO Design Guidelines
- State/Local Design Standards
- Design Variances & Exceptions
Evolution of Street Standards

1. All curb returns shall be stand-up curb & gutter (Type A, B, C, D, E).
2. Stormwater shall be constructed according to Section 2.3.1, Bermonc Requirements.
3. Sidewalk and pavement widths shall be required in accordance with the table.

Design requirements for multi-use lane improvements and curb extension shall be reviewed and approved by the Public Director.

Mixed-use Residential Standards:
- Stormwater management standards
- Sidewalk and curb improvements
- Residential focus frontage areas
- Mixed-use standards

For more information, see Section 15.04.10.
Street Functional Classification & Typology

✓ **Functional Classification** – definitions of level of access and traffic control (mobility) guiding street design standards (historic policy)

✓ **Street Typology** – defines street use and design features to support adjacent land uses as (policy overlay)
Why Consider Street Typologies?

• Responsive to community concerns
• Ease planning efforts to include evaluation of street design standards to better address multimodal functions, particularly within constrained corridors
  ✓ Transit
  ✓ Bicycle
  ✓ Pedestrian
Complete Streets Policy
Example Complete Streets Policy

The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right of way.

Examples of how the complete streets policy may be implemented:

- Design and construct right-of-way improvements in compliance with ADA accessibility guidelines.
- Incorporate features that create a pedestrian friendly environment, such as:
  - narrower traffic lanes
  - median refuges
  - curb extensions ("bulb-outs")
  - count-down pedestrian signals
- Improve pedestrian accommodation and safety at signalized intersections by:
  - using good geometric design to minimize crossing distances and increase visibility between pedestrians and motorists
  - timing signals to minimize pedestrian delay & conflicts
  - balancing competing needs of vehicular level of service and pedestrian safety (e.g., 2007 version of MUTCD to reduce design walking speed from 4 ft./sec. to 3.5 ft./sec.)
- Reclaim street space for other uses through the use of "road diets" (e.g., convert four-lane roadway to three-lane roadway with marked bike lanes)
Benefits of Complete Streets Policy & Plans

- Can Bolster Economic Growth
- Improved Traveler Safety
- Greater Active Living
- More Travel Choices
- Increased Transportation System Capacity
- Greater SRTS Routes / Improved Child Safety
- Short-Term & Long-Term Fiscal Savings
Complete Streets
Land Use/Transportation Integration

✓ To be effective, Complete Streets Policy must be incorporated into:
  a) local comprehensive plans, zoning ordinance, and,
  b) transportation system plans and design guides

✓ CS must be sensitive to surrounding community character – current/planned buildings, trails, parks, etc.
Complete Street Transect

C1-Natural
Lands preserved in a natural or wilderness condition, including lands unsuitable for settlement due to natural conditions.

C2-Rural
Sparsely settled lands; may include agricultural land, grassland, woodland, and wetlands.

C2T-Rural Town
Small concentrations of developed areas immediately surrounded by rural and natural areas; includes many historic towns.

C3R-Suburban Residential
Mostly residential uses within large blocks and a disconnected or sparse roadway network.

C3C-Suburban Commercial
Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.

C4-Urban General
Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.

C5-Urban Center
Mix of uses set within small blocks with a well-connected roadway network. Typically concentrated around a few blocks and identified as part of a civic or economic center of a community, town, or city.

C6-Urban Core
Areas with the highest densities and building heights, and the FDOT classified Large Urbanized Areas (population >1,000,000). Many are regional centers and destinations. Buildings have mixed uses, are built up to the roadway, and are within a well-connected roadway network.
Street Network, Building Form and Land Use
### General Characteristics
Designed to provide a high degree of mobility and generally serve longer vehicle trips to, from, and within urban areas. Interconnects major urban elements such as the Central Business District, industrial facilities, large urban and suburban commercial centers, major residential areas, and other key activity centers.

### Primary Function
Movement of people and goods, also known as "mobility," rather than access to adjacent land uses. Serve a citywide function and are, therefore, designated using a broader citywide perspective. (Arterials are not planned on a neighborhood level since the result would be discontinuity and a breakdown in the street’s citywide or regional function.)

### Posted Speed Limits
Generally range between 30 and 45 mph, varying based on the type of area being served. Higher-density central business usually accommodate businesses usually accommodate the lower end of the speed range, while higher speeds are found on facilities in outlying areas.

### Volume & Capacity
Traffic volume and capacity of an arterial street are dependent, in part, on the number of through and turning lanes, signalization, the number of driveways and access points, and the volume of bus and truck traffic. The volumes and capacity of arterials can range from 10,000 vehicles per day on a two-lane arterial to 75,000 vehicles on a six-lane arterial.

### Modal Context
With an emphasis on mobility, an arterial facility is generally designed to accommodate vehicle trips in the form of passenger cars, trucks, and buses. Bicycle facilities may be provided. Pedestrian facilities are always provided, but the width of these facilities varies depending on adjacent land use and the level of pedestrian activity.
Street Design Guidance
Street Patterns – Built Environment

Highly Connected

Well Connected

Poorly Connected
The arterial is the primary street in the area, with most principal commercial streets oriented to it.

Many buildings in typical commercial context are not fully oriented to the street: they may face it, but parking demand often influences their form and placement relative to the street.

Often in these contexts the commercial land use is just along the main street, though the nature of this land use will have implications on the design of the roadway.
Traditional Commercial Arterial

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design/Operating Speed</td>
<td>35 mph</td>
</tr>
<tr>
<td>Number of Travel Lanes (per direction)</td>
<td>2</td>
</tr>
<tr>
<td>Lane Dimensions</td>
<td>10' inner, 11' outer</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>Allowed for heavy turning movements or heavy truck traffic</td>
</tr>
<tr>
<td>Bicycle Lanes</td>
<td>3</td>
</tr>
<tr>
<td>On-Street Parking</td>
<td>none</td>
</tr>
<tr>
<td>Curb</td>
<td>6&quot; with 1.5&quot; gutter plain</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>See details below on Curb/Buffer/Walk zone</td>
</tr>
<tr>
<td>Frontage Zone</td>
<td>See details below</td>
</tr>
<tr>
<td>Intersection Control</td>
<td>Signals or stop across streets only</td>
</tr>
<tr>
<td>Lighting Standards</td>
<td>Vehicle/roadway</td>
</tr>
</tbody>
</table>

* Generally, ACHD allows lanes no smaller than 10.5' to 11' wide on arterials but may consider 9' lanes in the following circumstances:
  - Low traffic volumes
  - Little or no truck volume
  - Speed 30 mph or less
  - In Town Centers
  - In retrofit situations where constraints prohibit wider lanes

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Pedestrian Zone

This is an illustrative legend to explain how the pedestrian zone is broken down; the colors do **NOT** indicate color-based surface treatments.

- **Clear/Buffer/Walk Zone**: 7' total includes walk area and space for future trees, plantings, and private development
- **Standard Width**: 39' includes on-street parking
- **Added Width**: 36' includes added width for utilities, sidewalks, and private development
- **Frontage Zone**: 2' space for utilities, to be hard-surfaced when utilities are placed underground, from private development. Any added width through either easement or right-of-way dedicated by private development.
Town centers typically have the most thoroughly connected street networks of a community.

Building form is often street-oriented: usually the traditional city centers or business districts; buildings were placed in a way to maximize pedestrian access.

Overall development patterns tend to be more intense and combine many uses in a small area (especially office, retail, dining and sometimes residential).
Town Center Commercial Arterial

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design/Operating Speed</td>
<td>30 mph</td>
</tr>
<tr>
<td>Number of Travel Lanes</td>
<td>3 (2 of each-way street is used)</td>
</tr>
<tr>
<td>(per direction)</td>
<td></td>
</tr>
<tr>
<td>Travel Lane Dimensions</td>
<td>11’</td>
</tr>
<tr>
<td>Left Turn Lane Dimensions</td>
<td>11’</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>Allowed for heavy turning movements or heavy truck traffic</td>
</tr>
<tr>
<td>Medians</td>
<td>Optional, when left turns not needed</td>
</tr>
<tr>
<td>Median Openings</td>
<td>When medians are used, openings for cross streets only</td>
</tr>
<tr>
<td>Block length</td>
<td>Intersection streets should be no more than 500’ apart. 500’ maximum mid-block curb cuts permitted only at intersecting alleys.</td>
</tr>
<tr>
<td>Bicycle Lanes</td>
<td>5’</td>
</tr>
<tr>
<td>On-Street Parking</td>
<td>7.5 maximum (includes gutter pan width)</td>
</tr>
<tr>
<td>Curb</td>
<td>6’ with 1.5’ gutter pan</td>
</tr>
<tr>
<td>Buffer Area</td>
<td>6’ minimum recommended (see clear zone and buffer zone dimensions below)</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>9’ minimum recommended (see walk zone and frontage zone dimensions below)</td>
</tr>
<tr>
<td>Mid-block crossings</td>
<td>Permitted only in front of cross facilities</td>
</tr>
<tr>
<td>Intersection Control</td>
<td>Signal or stop (cross streets only)</td>
</tr>
<tr>
<td>Preferred Building Placement</td>
<td>edge of right-of-way</td>
</tr>
<tr>
<td>Pedestrian Zone</td>
<td>This is an illustrative legend to explain how the pedestrian zone is broken down. The colors do NOT indicate color-based surface treatments.</td>
</tr>
</tbody>
</table>
Street networks are often well-connected in older residential areas, where newer development patterns have favored cul-de-sacs and dead-end streets.

Buildings are typically detached and though they face streets, there is not the same street orientation as in town center areas.

Along regional arterials, more recent development patterns have favored inward-facing subdivisions, often surrounded by walls to separate the rear side of residential lots from the arterial roadway.
Residential Arterial

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design/Operating Speed</td>
<td>35 mph</td>
</tr>
<tr>
<td>Number of Travel Lanes</td>
<td>2</td>
</tr>
<tr>
<td>(per direction)</td>
<td></td>
</tr>
<tr>
<td>Travel Lane Dimensions</td>
<td>11'</td>
</tr>
<tr>
<td>Center Turn Lane</td>
<td>11'</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>Allows for heavy turning movements or heavy truck traffic.</td>
</tr>
<tr>
<td>Medians</td>
<td>11', to be substituted with turn lanes at intersections.</td>
</tr>
<tr>
<td>Median Openings</td>
<td>for cross streets only when medians used</td>
</tr>
<tr>
<td>Bicycle Lanes</td>
<td>S</td>
</tr>
<tr>
<td>On-Street Parking</td>
<td>Permitted, not typical but possible: 7 parallel when used (includes gutter &amp; lane width)</td>
</tr>
<tr>
<td>Drainage</td>
<td>curbs and gutter</td>
</tr>
<tr>
<td>Buffer Area</td>
<td>6' (per clear zone and buffer zone below)</td>
</tr>
<tr>
<td>Sidewalks</td>
<td>5' minimum recommended (see walk zone dimension below); frontage zone allows sky area from sidewalk as needed</td>
</tr>
<tr>
<td>Intersection Control</td>
<td>signage or stops (stops on cross streets only)</td>
</tr>
<tr>
<td>Lighting Standards</td>
<td>vehicle/roadway only</td>
</tr>
</tbody>
</table>

Pedestrian Zone

This is an illustrative legend to explain how the pedestrian zone is broken down: the colors do **NOT** indicate color-based surface treatments.

- **Clear zone:** 2'
- **Buffer Zone:** 4'
- **Walk Zone:** 5' minimum recommended
- **Frontage Zone:** 2' for utility placement and buffer from walls
Partly due to the size of many industrial properties, network connectivity varies in industrial areas, typically focused on main streets and cross streets providing additional access.

Newer industrial areas have a service function that often requires significant vehicle circulation space in front of buildings; this leaves buildings separated from streets.

Industrial areas tend to be larger in their extent than ‘strip commercial’ corridors: many have evolved from being oriented to a railroad facility to having adjacency to principal roads as well.
Industrial Arterial

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design/Operating Speed</td>
<td>45 mph</td>
</tr>
<tr>
<td>Number of Travel Lanes (per direction)</td>
<td>2</td>
</tr>
<tr>
<td>Travel Lane Dimensions</td>
<td>12'</td>
</tr>
<tr>
<td>Paved Shoulders</td>
<td>6</td>
</tr>
<tr>
<td>Center Turn Lane Dimensions</td>
<td>12'</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>allowed for heavy turning movements or heavy truck traffic</td>
</tr>
<tr>
<td>Medians</td>
<td>not typically needed, permitted to bifurcate roadway before transition to center turn lane</td>
</tr>
<tr>
<td>Median Openings</td>
<td>median for transition into three- or five-lane sections not needed</td>
</tr>
<tr>
<td>Bicycle Lanes</td>
<td>bike lane appropriate for lower speeds, 5' minimum</td>
</tr>
<tr>
<td>On-Street Parking</td>
<td>none</td>
</tr>
<tr>
<td>Curbs</td>
<td>6' in 1 5' gutter pan</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>5' sidewalks on at least one side of the street, in certain cases both sides are desirable</td>
</tr>
<tr>
<td>Intersection Control</td>
<td>signal or stop</td>
</tr>
<tr>
<td>Lighting</td>
<td>vehicles/roadway</td>
</tr>
<tr>
<td>Utility Zone</td>
<td>1</td>
</tr>
</tbody>
</table>
Street networks are often well-connected in older residential areas, where newer development patterns have favored cul-de-sacs and dead-end streets.

Buildings are typically detached and face local streets. Some residential developments include backside alleys and parking.

Land use patterns along residential local streets are typically exclusively residential and commonly detached, single-family structures.
## Residential Local

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Typical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design/Operating Speed</td>
<td>20-25 mph</td>
</tr>
<tr>
<td>Number of Travel Lanes (per direction)</td>
<td>1 (lanes not striped)</td>
</tr>
<tr>
<td>Travel Lane Dimensions*</td>
<td>23’ for local roadway, not striped</td>
</tr>
<tr>
<td>Center Turn Lane Dimensions</td>
<td>Center lane not used</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>Allowed for heavy turning movements or heavy truck traffic</td>
</tr>
<tr>
<td>Median</td>
<td>0</td>
</tr>
<tr>
<td>Median Openings</td>
<td>0</td>
</tr>
<tr>
<td>Bicycle Lanes</td>
<td>0</td>
</tr>
<tr>
<td>On Street Parking*</td>
<td>permitted, intended for one side of street only (included in total pavement width)</td>
</tr>
<tr>
<td>Curb</td>
<td>6” with 1 3/4 gutter pan</td>
</tr>
<tr>
<td>Buffer Area</td>
<td>6’ (no clear zone and buffer zone below), 12” dimension can accommodate utilities</td>
</tr>
<tr>
<td>Sidewalk</td>
<td>5’ minimum, top walk zone below</td>
</tr>
<tr>
<td>Intersection Control</td>
<td>signal, stop or roundabouts</td>
</tr>
<tr>
<td>Lighting Standards</td>
<td>vehicle/roadway, additional pedestrian-level lighting acceptable</td>
</tr>
</tbody>
</table>

* Other street sections are described in ADOT’s policy for Minor Residential Local Streets and parking on both sides of the street.

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**Pedestrian Zone**

This is an illustrative legend to explain how the pedestrian zone is broken down; the colors do **NOT** indicate color-based surface treatments.

- **Clear zone: 2’**
- **Buffer Zone: 4’**
- **Walk Zone: 5’ minimum recommended**
- **Frontage Zone: not needed; utility placement in Buffer Zone acceptable**
Residential Local

Infill – Higher Density
Primary Transit
Primary Transit Network

- What is the PTN: network of core routes that aspire to minimum level and quality of service
  - Frequencies of 15 minutes or better *(frequent service)*
  - Span of 18 hrs, 7 days per week
  - Minimum operating speed and on-time performance
- PTN provides a core network or routes to plan transit supportive land uses around
- PTN is infrastructure, meaning (community x) is committed to managing PTN ROW to support high transit quality and/or levels of service
- Secondary Transit Network (STN) supports by *feeding* PTN and *covering* lower density neighborhoods
TriMet’s Frequent Service bus lines and MAX Light Rail run every 15 minutes or better most of the day, every day.
Typology: Mixed-Modal Street

On Mixed-Modal Streets….

where transit frequencies

(>=30 minutes) (STN)

and bicycle volumes are

relative low and

balanced….

Simultaneous use of space

is infrequent / non-

conflicting
Typology: Mixed-Modal Street

If / when route is part of **Primary Transit Network**

With **higher frequencies**... (=&lt;15 minutes) (PTN)

and **need to preserve higher level of operation speed and reliability**...

in the form of frequent bus, bus rapid transit or streetcar...

And **bicycle volumes** are also high...

results in much higher conflict.
Auto/Bike/Transit Street Examples

(1) Shift Bicycle facility to parallel routes with either on-street bike lanes or designate as Bike Boulevards (shared roadway, increased Bicycle priority), and

(2) Accommodate both bicycles and frequent transit by separating bicycle and transit lanes (only on on-way streets) or providing dedicated ROW for both (requires substantial reduction of auto capacity)

(3) Remove on-street parking (if applicable) and bike lane from primary transit network routes

- Easy to do in a grid system.
- Difficult when no parallel routes exist.

Note: Allocation of street ROW should be based on some measurement of person movement capacity/person delay.
Pedestrian Zone / Bicycle Facility
Best Practice
Example Pedestrian Zone

✓ Variable Dimensions for Land Use Context

Town Center
Arterial

Residential
Arterial
Bicycle Facility Options

- Shared Lane
- Bike Lane
- Buffered Bike Lane
- Raised Cycle Track
- Two-Way Cycle Track
- Shared-Use Pathway
Utilities
Utilities

**DEFAULT CASE**
Utilities built in buffer at edge of right-of-way

**Land development regulations change and bring building placement to right-of-way edge**

**DESIGN IMPLICATIONS:** Utilities are placed at the edge of right-of-way. Individual pole placement needs to be coordinated with access points and other roadway design features.

The TUP efforts thus far have demonstrated the benefits of land uses that engage pedestrians along the street. As local governments redefine land development standards to reflect this, transportation projects will need to reconsider utility placement.

**OPTION 1**
Overhead utilities placed in planter strip

**DESIGN IMPLICATIONS:** Tree placement and selection must keep in mind typical utility vertical clearances to avoid damage to trees from utility provider maintenance. Utility buffer can be handscooped to add to pedestrian area as 'shy zone' against buildings (see Sections 2.5 and 2.6).

**OPTION 2**
Overhead utilities placed alley behind private property

**DESIGN IMPLICATIONS:** Occurs when alleys added as part of a street design or other agreements are secured for utility placement behind buildings. Utility buffer can be handscooped to add to pedestrian area as 'shy zone' against buildings (see Sections 2.5 and 2.6).

**OPTION 3**
Utilities placed underground in right of way, either in planter strip or in designated utility buffer

**DESIGN IMPLICATIONS:** Though handscooping is optional, utility buffer can remain grass or ground cover if utilities are placed there.

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40
On-Street Parking
On-Street Parking

Best-Suited

- City Center Streets
- Local Streets
- Lower Volume/Speed Town Center Streets

III-Suited

- Primary Transit Streets
- Higher Volume/Speed Mobility Arterials
Mapping Street Master Plans
Principles of Access Management

- Lay the foundation for access management in local comprehensive plans.
- Limit the number of driveways per lot (generally, one per parcel).
- Locate driveways away from intersections.
- Connect parking lots and consolidate driveways (so vehicles can travel between parcels without reentering an arterial).
- Provide residential access through neighborhood streets (residential driveways should generally not connect directly to arterials).
- Increase minimum lot frontage on major streets (minimum lot sizes on major arterials should be larger than on minor streets).
- Promote a Connected street system (avoid street networks that force all local traffic onto arterials).
- Encourage internal access to out parcels (i.e., locations in shopping centers located on arterial streets).
- Regulate the location, spacing and design of driveways.
- Coordinate with the WSDOT.
Appropriate Regional Travel Model Applications
Integrating Land Use & Transportation

Land Use
- Vision-Based
- Adopted Comprehensive Plans

Transportation
- Location/Street Class-Specific LOS (capacity)
- Scrutinized Street Hierarchy

travel demand model outcomes

- Right-Size Long-Range Transportation Plans
- Right-Size Livable Streets
Principles to Consider in the Future

✓ Tailor Network with Streets for Different Modes
✓ Separate Streets by Speed
  ✓ Connected / Autonomous Vehicles (CAV) & digital navigation tools may enable faster streets to move people, and slower streets to focus more on cycling / walking
✓ Incorporate Flexibility into Street Space
  ✓ Adaptable infrastructure and real-time traffic management systems may enable ‘dynamic’ land and traffic control that varies by time of day.
✓ Recapture Some Street Space for the Public Realm
  ✓ CAV, adaptable infrastructure and moveable street furniture may enable cities to recapture space previously devoted to parked vehicles.
Breakout Session
Repurposing Streetscape
Incomplete Bicycle Network

- A River Runs Through It!
- Bridges Lack Bike Facilities
- State Highway / One-Way Couplet Lacks Width for Wider Bike Facilities
- Low Cycling Utility
- Community Seeks Greater Connectedness
- Growing Tourism Demand
City Center
Bridges Lack Bicycle Facilities
Bicycle Facility Options to Consider

- Shared Lane
- Bike Lane
- Buffered Bike Lane
- Raised Cycle Track
- Two-Way Cycle Track
- Shared-Use Pathway
### 7th Street

#### Existing

<table>
<thead>
<tr>
<th>Study Year</th>
<th>Action</th>
<th>PM Peak Hour Volume-to-Capacity</th>
<th>Mobility Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>No Action</td>
<td>Drop Lane</td>
<td>0.64, 0.75, 0.95</td>
</tr>
</tbody>
</table>
7th Street

EXISTING

ALTERNATIVE A – TWO-WAY CYCLE TRACK ON EAST SIDE

ALTERNATIVE A – TWO-WAY CYCLE TRACK ON WEST SIDE

PROPOSED

Proposed 2-Way Cycle Track
Seattle – 2\textsuperscript{nd} Avenue 2-way Cycle Track
7th Street Bridge
7th Street Bridge

Existing

Proposed Shared-Use Path
Draft Bicycle & Pedestrian Network Plan

Legend

**Bicycle Facilities**
- Striped Bike Lane
- Bike Boulevard
- Shared Lanes
- Shared Use Path
- Mountain Bike Trails

**Future Connections**
- Bike Lane
- Buffered Bike Lane
- Bike Boulevard or Shared Lanes
- Two-Way Cycle Track
- Shared Use Path

Work-In-Progress
US 199: Y Junction – Park St

Existing

ALTERNATIVE – SHARED USE PATH
US 199: Y Junction – Park St

- **Existing**

- **Proposed Shared-Use Path**
US 199: Rogue River BR

Existing

Proposed 2-Way Cycle Track
US 199: Railroad Overpass
US 199: Railroad Overpass

**Existing**

**Proposed Shared-Use Path**
Arterial Junction Options (supplemental slides)
Restricted U-Turn Junctions
The Jug Handle concept removes all turn movements from the major highway and shifts them to the cross-street via a right-turn lane.