



# memo

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to      **Dustin Nilsen and Will Norris, City of Hood River**  
from   **Nathan Polanski, PE, Alex Dupey, AICP, MIG**  
re      **The Heights Streetscape Plan – Preliminary Evaluation Criteria and Design Alternatives**  
date    **October 8, 2021**

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This memorandum presents preliminary evaluation criteria and preliminary design alternatives for OR 281 through the Heights. This memorandum also describes the results of a preliminary evaluation using the project goals established by the Urban Renewal Agency Board (URAB) in Summer 2021.

The intent of these preliminary design alternatives and evaluation is to provide the Urban Renewal Advisory Committee (URAC), URAB, and the Oregon Department of Transportation (ODOT) an opportunity to review what has been developed prior to completing a traffic study and evaluation of the alternatives. Revisions can then be incorporated prior to conducting the traffic study and evaluation and presenting the alternatives to the public (both in-person and online) in Winter 2022.

## **Considerations During Review**

The preliminary design alternatives identify potential elements that could be considered, together or in part, for the preferred design that will be developed with URAB, URAC and community input in Winter/Spring 2022. The intent of these preliminary alternatives is not to provide a single alternative that will be selected, but options for consideration. The preferred alternative may combine aspects of more than one design alternative that best meets the goals of the project and incorporates community input.

As you review the preliminary evaluation criteria and design alternatives, consider the following:

1. Do you see any potential gaps in the proposed evaluation criteria based on information gathered and discussions from Phase 1 (goal setting)?
2. Does the presentation packet provide the clarity needed to understand each of the design alternatives?
3. Is there other information not included in this packet that should be discussed as part of the design and/or community engagement process? (Note: traffic analysis and evaluation of preliminary design alternatives will be completed prior to the next round of public engagement).

## Preliminary Design Alternatives Overview

Today's roadways and intersections in the Heights were designed to move vehicular traffic with limited consideration for the comfort of people walking and biking. As a result, vehicular performance (e.g., level of service) has remained high while the comfort of people walking and biking is low.

The Project Team has developed three preliminary design alternatives, in addition to what is assumed in the City's adopted Transportation System Plan (TSP), to test various streetscape design elements. The preliminary design alternatives take into consideration community conversations that have occurred over the past several years and represent a spectrum of potential streetscape interventions. The preliminary alternatives seek to balance the streetscape performance for people driving, walking and biking while considering local business needs to better align the roadway design with the project goals. The preliminary design alternatives include:

- Baseline Alternative: Current Adopted Plan (City Transportation System Plan, October 2011, Amended April 2021)
- Design Alternative 1: Two Lane, Two-Way Traffic
- Design Alternative 2: One Lane, One-Way Traffic
- Design Alternative 3: Hybrid – One Lane, One-way on 12<sup>th</sup> and Two-Way traffic on 13<sup>th</sup>

Consistent with the community's goals for the Heights, each of the preliminary design alternatives reprioritize how the limited public right-of-way is used to improve safety and achieve the desired balance of performance for all modes of travel. As a result, it is anticipated that congestion for vehicular travel will increase with all alternatives presented. Each alternative also changes the flow of traffic through the Heights and is a departure from the City's adopted plan (TSP) that has been approved by ODOT. There may be aspects of one design alternative that can be incorporated into another alternative, however, not every element of each design is interchangeable given the limited right of way and existing site constraints.

Each alternative is described and illustrated beginning on page 7. The Project Team will also evaluate each design alternative using the project goals as a lens for evaluation.

## Preliminary Evaluation Criteria

The Project Team developed preliminary evaluation criteria that align with the URAB's adopted project goals and desired project outcomes based on community and stakeholder feedback from Phase 1. When finalized the evaluation criteria will be used for evaluating the preliminary design alternatives.

Safety was identified as a community priority and a key element of multiple project goals. Rather than assigning "safety" as a specific criterion each of the preliminary design alternatives, improving safety is imbedded in each alternative. Each alternative also provides distinct types of facilities that can be evaluated and compared against each other to help identify a preferred alternative that improves safety for users of all ages and abilities.

The following list of proposed evaluation criteria is organized by project goal.

*Project Goal 1: Calm traffic and improve intersections to improve safety for people driving, walking, biking, taking transit and supporting local businesses.*

### Proposed evaluation criteria:

- Provides traffic calming – based on the typical street cross sections and potential for each alternative to incorporate additional traffic control measures.

- Accommodates vehicular traffic - measured based on the flow rate of vehicular traffic and measured as the volume-to-capacity (v/c) ratio; also, ODOT's mobility standard.
- Improves intersections - based on the comfort provided by proposed intersection designs.

*Project Goal 2: Preserve and promote a livable community and economy through streetscape improvements that increases safety for people walking and biking and addresses parking needs to support local business access, and future mixed-use development.*

Proposed evaluation criteria:

- Accommodates parking – measured based on the quantity and location of parking provided. Parking quantity will be measured in comparison to the planned improvements documented in the City's TSP rather than the existing conditions on-street.
- Supports the local economy – based on how the design alternative supports business access through visibility to storefronts, ease of parking and delivery access, ease of access for people walking and biking, and the impacts to private parcels.
- Supports livability – based on how the design alternative contributes to a reduction in traffic speeds, supports an increased "walk score" rating, supports future development, and creates opportunities for shared streets or other community events to occur within the public right of way.
- Adapts seasonally – based on the how the proposed cross section might function, be used, and be maintained during the winter months.

*Project Goal 3: Create an identify for the Heights that reflects the diverse culture and history of the area and as destination for local residents for goods and services.*

Proposed evaluation criteria:

- Opportunity for creating identity – measured based on opportunities or potential areas created within the right of way to enhance the Heights identity.
- Supports the Heights as a destination for locals – based on how the alternative improves local access.
- Creates opportunities for an enhanced landscape – measured based on how the alternative enhances opportunities for street trees, planting areas, and green stormwater infrastructure.

*Project Goal 4: Create streets and gathering spaces that provide safe, comfortable places for people walking, accessing transit, and biking along and across the corridor and that connects area recreation and commercial destinations and neighborhoods.*

Proposed evaluation criteria:

- Provides comfortable places for walking – based on the space available and the separation from vehicular traffic and people biking.
- Provides comfortable places for biking – based on the type of facility provided, space available, and separation from vehicular traffic and people walking. Note, each of the proposed design alternatives include all ages and abilities facilities along 12<sup>th</sup>, 13<sup>th</sup> and May Streets.
- Aligns with Safe Routes to School Goals – based on how the alternative aligns with goals and recommendations from the City's Safe Routes to School project.

- Improves connections – based on how the transportation system improves connections to parks, schools, and trails.
- Connects to planned bike routes – based on transitions to existing/planned bike lanes routes beyond the project site.

*Project Goal 5: Support existing and future development by maintaining and improving utility infrastructure as part of the streetscape project.*

Proposed evaluation criteria:

- Impacts to utility infrastructure – based on potential implications for replacing and maintaining utilities based on where and how existing utility infrastructure is located within the roadway cross section.

*Project Goal 6: Engage local residents and businesses, the school district, and those that use the corridor to provide ongoing input in the streetscape project.*

- This goal is not applicable to the evaluation of design alternatives. No evaluation criteria are proposed.

*Project Goal 7: Provide locations for people to gather, to stop and rest.*

Proposed evaluation criteria:

- Creates opportunities for placemaking – based on the number and size of potential gathering areas that can be incorporated into the streetscape.

While not addressed in the project goals, the Project Team will also provide information that addresses implementation feasibility including:

- Potential cost and funding opportunities for implementation
- Potential construction impacts
- Ability to maintain the proposed infrastructure improvements
- Ease of obtaining ODOT design approval
- Property impacts and the potential need for right of way acquisition

Using input gathered from the URAB and URAC, the Project Team will update the preliminary evaluation criteria, as needed, to conduct an analysis and full evaluation of each design alternative. The result of the evaluation will be presented to the community as part of the public engagement process to gather additional input prior to developing the preferred design alternative.








## Preliminary Design Alternatives

The Project Team developed three preliminary design alternatives for key study streets (12<sup>th</sup>, 13<sup>th</sup>, and May Streets) and intersections along OR 281 in the Heights. Each alternative includes the following:

1. An Introduction provides an overview summarizing the major changes to 12<sup>th</sup> and 13<sup>th</sup> Streets and conceptual renderings show how these streets might look based on the typical street cross sections.
2. A circulation diagram and typical street sections illustrate the proposed traffic circulation patterns for people driving and biking through the Heights, the type of intersection control proposed at key intersections, and the location and type of on-street parking. Typical street cross sections are shown for 12<sup>th</sup>, 13<sup>th</sup>, and May Streets along OR 281. Precedent images show the type of bicycle facilities proposed in the street cross sections.

The locations and types of on-street parking on 12<sup>th</sup> and 13<sup>th</sup> Streets are identified on the circulation diagram for each alternative; however, parking impacts may vary considerably depending on the recommended design of the east/west streets that will be completed as part of the preferred alternative. Potential loss of parking on 12<sup>th</sup> and 13<sup>th</sup> may be mitigated by additional parking provided on other streets, depending on the recommendations for the final streetscape plan.

3. Intersection designs illustrate channelization for cars and bikes at key intersections on 12<sup>th</sup> and 13<sup>th</sup> Streets at May Street and Belmont Avenue. Precedent images illustrate unique elements and potential opportunities for each of the intersection designs.
4. Summary and preliminary evaluation. This section includes a summary of potential traffic engineering impacts based on the Project Team's understanding of existing and projected traffic volumes and the City's existing traffic model, key characteristics of each alternative, and design elements from the typical street cross sections that require ODOT Design Exception approval (as currently shown and to be confirmed with ODOT). A preliminary evaluation of each design alternative highlights key evaluation criteria and rates each alternative based on its alignment with the project goals. The evaluation shown is summarized as follows:

	<u>Very good</u> alignment with project goals
	<u>Good</u> alignment with project goals
	<u>Average</u> alignment with project goals
	<u>Poor</u> alignment with project goals
	<u>Undesirable</u> alignment with project goals

The following elements are not included as part of the preliminary design alternatives and will be explored in more detail as the preferred design alternative is developed:

- Potential right-of way impacts have not been documented for the preliminary design alternatives. The Project Team assumes that as design alternatives are refined potential impacts will be

identified and will inform the evaluation of alternatives. As the preferred alternative is developed, refinements to the design will clarify potential impacts to adjacent properties and potential right-of-way acquisition, if any. Variables, such as whether roundabouts are incorporated, may have a significant impact on the amount of new right-of-way needed.

- Locations for crosswalks and enhancements to improve east/west connections are essential streetscape and mobility elements that will be included as the preferred design alternative is developed.

The last page of this memorandum provides a side-by-side summary of the Project Team’s preliminary evaluation for each of the preliminary design alternatives and the City’s current adopted plan in the TSP. This preliminary evaluation highlights key evaluation criteria and rates each alternative based on its alignment with the project goals.

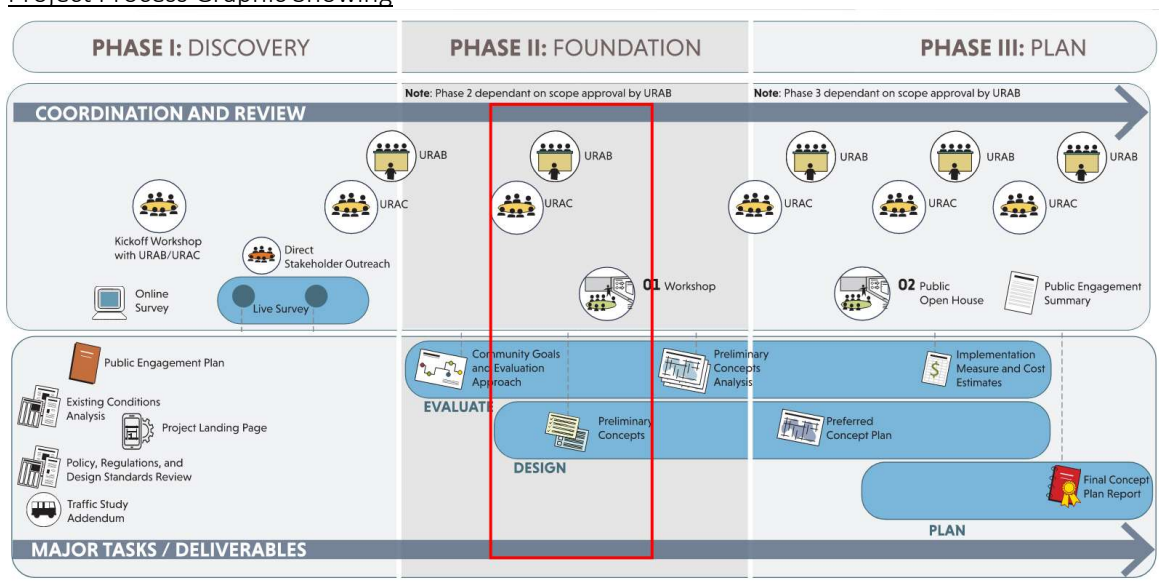
## Next Steps

After meeting with the URAB and URAC, the Project Team will meet with ODOT to discuss the preliminary design alternatives and receive feedback. The Project Team will consider feedback from these meetings and make revisions prior to beginning the traffic analysis and full evaluation of each design alternative. Upon completing the evaluation, the Project Team will schedule a second round of meetings with the URAB, URAC, and ODOT to review the findings of the evaluation. After the evaluation has been finalized the Project Team will prepare for an on-line and in-person open house and targeted stakeholder engagement in early 2022 to present the preliminary design alternatives and results of the evaluation.

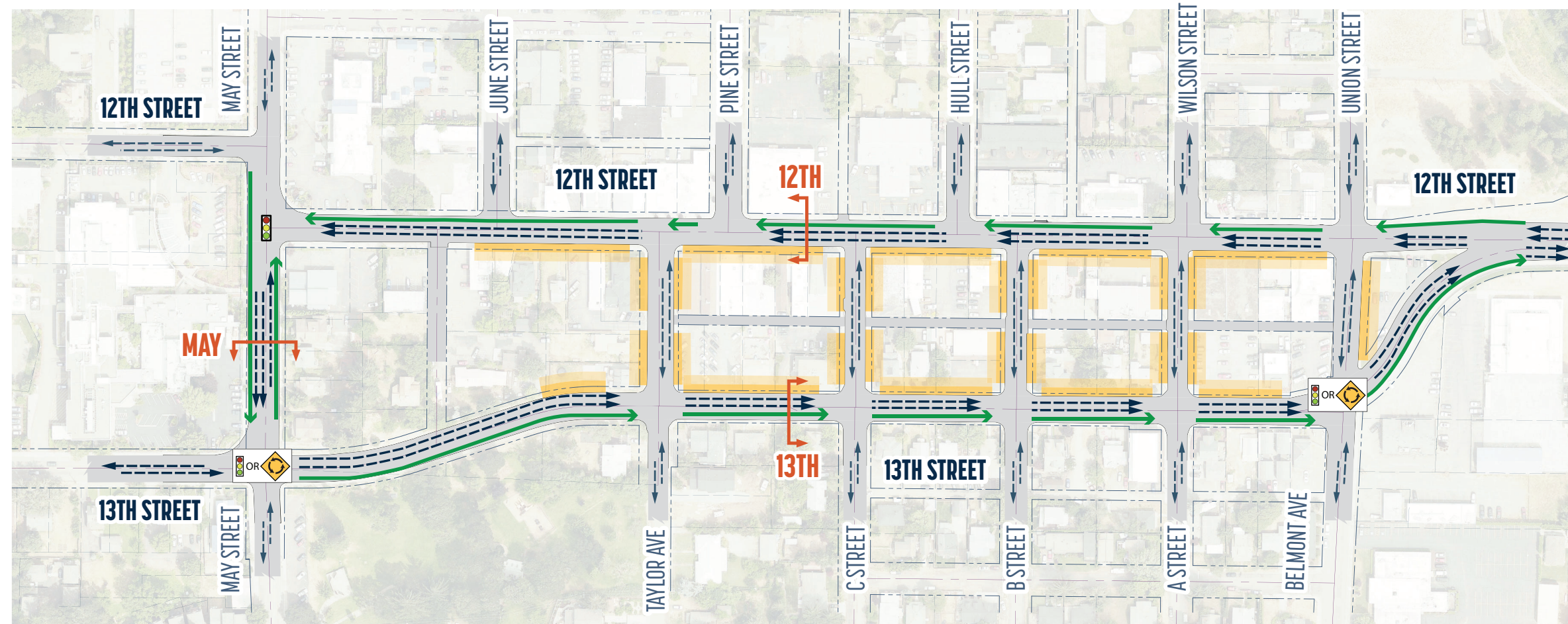
Based on project goals the Project Team will then make a recommendation to the URAB using the outcomes from the traffic analysis and evaluation and feedback gathered from the URAB, URAC, ODOT, and community engagement process.

The project process graphic, developed at the start of this project and shown below, shows in red where we are in the project.

Project Process Graphic Showing



This diagram illustrates traffic patterns, planned bicycle facilities, and proposed intersection improvements from the City's Transportation System Plan (October 2011, amended April 2021). This plan has been adopted by the city as the future direction for OR 281 through the Heights and has been approved by ODOT.



## LEGEND

-  Right of Way
-  Parcels

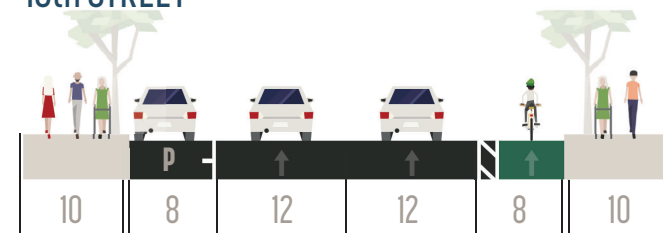
-  Travel Lane - City Street
-  Travel Lane - ODOT

-  Bike Lane
-  Parallel Street Parking

-  Traffic Signal
-  The adopted TSP notes intersection control could be a traffic signal or roundabout



## 13th STREET



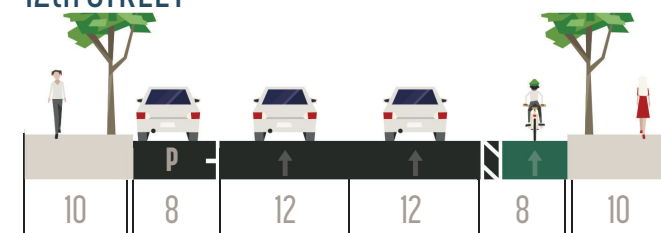
(50' R/W + 5' Utility Easements)

EXAMPLE OF BUFFERED BIKE LANE - 12TH & 13TH STREETS



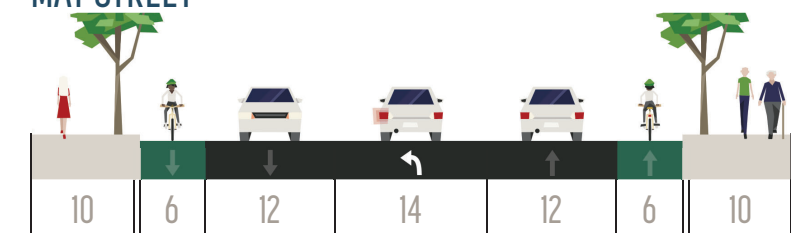
Source: MIG

## 12th STREET



(60' R/W + 10' Easement)

## MAY STREET



(60' R/W + 10' Easement)

EXAMPLE OF CONVENTIONAL BIKE LANE - MAY STREET



Source: pedbikeimages.com, Dan Burden



## CURRENT ADOPTED PLAN (TSP) – TWO LANE, ONE-WAY CIRCULATION








The City's current adopted plan for improving 12<sup>th</sup>, 13<sup>th</sup>, and May Streets is documented in the City's Transportation System Plan (TSP). The TSP has been reviewed and approved by ODOT and does not change the way traffic flows through the Heights.

Planned improvements documented in the TSP include:






- Removing on-street parking along the right side of 12<sup>th</sup> and 13<sup>th</sup> Streets to provide on-street bike lanes.
- Constructing a traffic signal or roundabout at the intersections of 13<sup>th</sup>/May and 13<sup>th</sup>/Belmont.
- Adding bike lanes to May Street and Belmont Avenue.

### Preliminary Evaluation for the Current Adopted Plan:

This preliminary evaluation highlights key evaluation criteria and rates the current adopted plan based on its alignment with the project goals.

Operational Capacity/LOS		The evaluation for operational capacity is not based on alignment with project goals but how the roadway is anticipated to function for vehicular traffic based on the typical street cross sections proposed.
Traffic Calming		Opportunities for traffic calming should contribute to slowing traffic on 12 <sup>th</sup> and 13 <sup>th</sup> Street through the Heights.
Parking		On-street parking is removed from the east side of 12 <sup>th</sup> Street and the west side of 13 <sup>th</sup> Street.
Economy		Except for on-street bike lanes the plan does not particularly improve or enhance access to/for businesses.
A Local Destination		Recommendations for improving access are limited to basic improvements and do not include significant enhancements.
Comfort and Connections		One-way travel locates bike lanes where drivers can anticipate behavior but bike facilities are not separated from the roadway.
Opportunity for Placemaking		The existing street cross sections provide limited opportunity for expanded gathering areas along 12 <sup>th</sup> and 13 <sup>th</sup> Streets.

### Legend for Preliminary Evaluation

-  Very good alignment with project goals
-  Good alignment with project goals
-  Average alignment with project goals
-  Poor alignment with project goals
-  Undesirable alignment with project goals

## DESIGN ALTERNATIVE 1 – TWO LANE, TWO-WAY CIRCULATION

This alternative converts existing one-way traffic on 12<sup>th</sup> and 13<sup>th</sup> Streets to two-way traffic, eliminating one-way streets that lead to wrong-way drivers who are unfamiliar with the area. Two travel lanes are maintained on each street; however, each street is designed differently:

- 12<sup>th</sup> Street is designed to function as more of a traditional “Main Street” with two-way vehicle travel and parking on both sides of the street.
- 13<sup>th</sup> Street is designed to function as more of a “Mobility Street” that focuses on moving people driving and biking north and south through the Heights.

This approach prioritizes people headed to local destinations along 12<sup>th</sup> Street while people passing through the Heights can use 13<sup>th</sup> Street. The conversion to two-way traffic also provides an all ages and abilities bike facility on one-way separated bike lanes, which are separated from the roadway with a curb and are not located adjacent to parking. Key intersections at 12<sup>th</sup> and 13<sup>th</sup> Streets along May Street and Belmont Avenue would be controlled with traffic signals.

The sketches below show how the change to traffic and the allocation of space on 12<sup>th</sup> and 13<sup>th</sup> Streets might look:

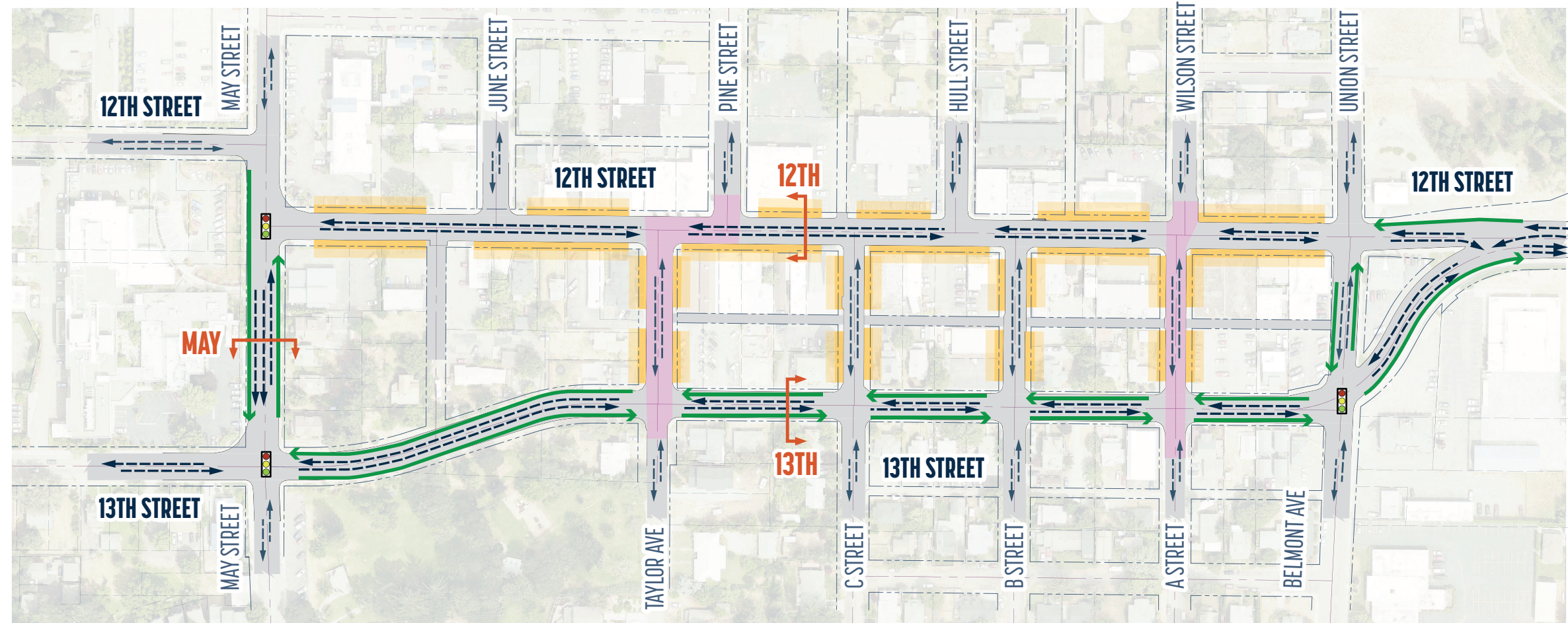


12<sup>th</sup> Street – looking north



13<sup>th</sup> Street – looking south





## LEGEND

Right of Way  
Parcels

Travel Lane - City Street  
Travel Lane - ODOT

Bike Lane  
Parallel Street Parking

Traffic Signal, See Note 1  
Enhancement to Improve East/West Connections

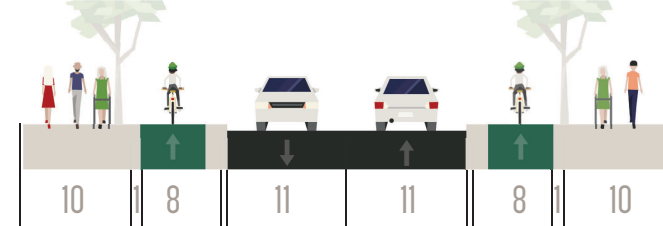
## NOTES

1. See intersection concepts for channelization at intersections.

0 50 100 200 400 feet



## 13th STREET "MOBILITY STREET"



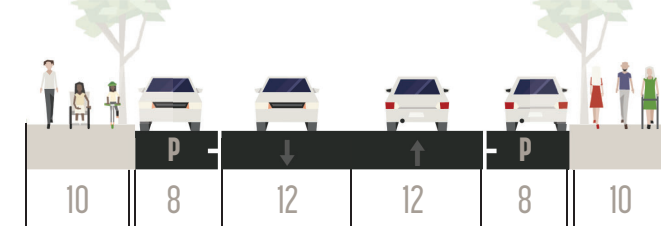
(50' R/W + [2] 5' Utility Easements)

EXAMPLE OF RAISED SEPARATED BIKE LANE - 13TH STREET



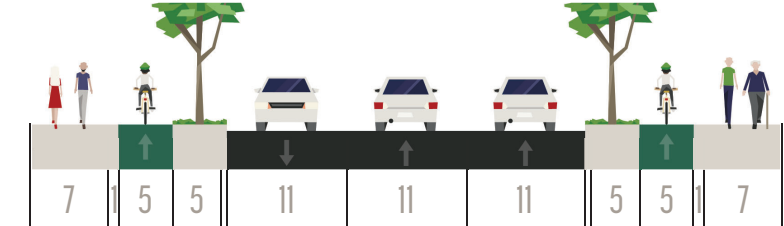
Source: MIG

## 12th STREET "MAIN STREET WITH PARKING"



(60' R/W)

## MAY STREET



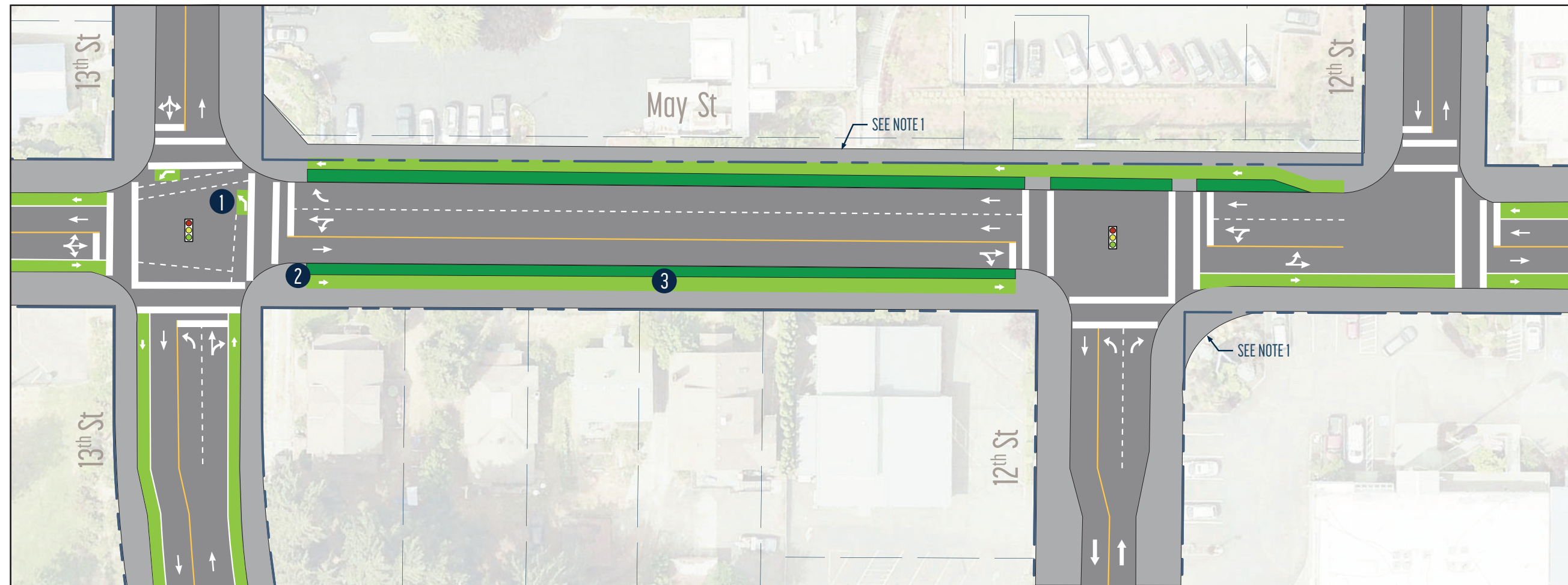
(60' R/W + 10' Easement)

EXAMPLE OF RAISED SEPARATED BIKE LANE - MAY STREET



Source: pedbikeimages.com, Carl Sundstrom





### LEGEND

- Right of Way
- Parcel Lines
- Roadway
- Sidewalk
- Planting
- Bike Lane

### NOTES

1. Limits of sidewalk extend to R/W or existing back of walk, whichever is further.
2. Trees to be located in a later design phase.
3. Existing driveway locations are not shown and will be incorporated in a later design phase.

### 1 Two Stage Bicycle Turn Box



Source: Creative Commons

### 2 Separated Bike Lane at Intersection



Source: Google Maps

### 3 Raised, Vegetation Separated Bike Lane



Source: MIG



### 1 Raised, Vegetated Separated Bike Lane



Source: MIG

### 2 Bike Box



Source: bikepedimages.org, Toole Group

### 3 Enhanced Crosswalk



Source: MIG

### 4 Traffic Calming Opportunity



Source: The Urbanist



### 5 Gateway Opportunity



Source: Visit Bend



### LEGEND

-  Right of Way
-  Parcel Lines
-  Roadway
-  Sidewalk
-  Planting
-  Bike Lane

### NOTES

1. Limits of sidewalk extend to R/W or existing back of walk, whichever is further.
2. Trees to be located in a later design phase.
3. Existing driveway locations are not shown and will be incorporated in a later design phase.



#### Potential Traffic Engineering Impacts:

A traffic study evaluating impacts to all modes of travel will be completed after the design alternatives have been reviewed with the URAB, URAC, and ODOT. Based on the project team's understanding of existing and projected traffic volumes the following impacts may be anticipated for Design Alternative 1 (these anticipated impacts will be confirmed as part traffic study):

- 13<sup>th</sup> Street may become congested as the desired through route for most vehicular traffic.
- Conversion to two-way traffic will create more opportunities for conflict between people driving and people biking at the 13<sup>th</sup> Street and 12<sup>th</sup> Street intersections on May Street compared to one-way traffic.
- This Design Alternative may have the greatest impact on on-street parking. Consistent management of on-street parking may be required to align parking demand with the reduced supply.
- The selection of a traffic calming treatment for the northbound entry to the 12<sup>th</sup> Street “Main Street with Parking” segment must be compatible with Hood River Fire and EMS, as well as transit operations.
- An additional traffic signal at the junction of 12<sup>th</sup> Street and 13<sup>th</sup> Street may be required.
- Although transit does not currently stop on 12<sup>th</sup> or 13<sup>th</sup>, future stops would be in-lane and stop traffic on 13<sup>th</sup> and could be in-lane or off to the side if parking is removed on 12<sup>th</sup>.

#### Key Characteristics of Design Alternative 1 include:

- Two-way traffic eliminates the incidence of wrong-way drivers due to one-way traffic.
- Two-way traffic should contribute to traffic calming goals and streets would be designed with additional traffic calming measures such as curb extensions, streets trees, and landscaping.
- On-street parking is limited to 12<sup>th</sup> Street and east/west City streets. No on-street parking is provided on 13<sup>th</sup> Street.
  - Note: the current adopted plan for 12<sup>th</sup> and 13<sup>th</sup> Streets eliminates half of the parking on each street to accommodate planned bike lanes.
- Reducing traffic to one lane in each direction may impact loading/unloading for larger trucks that currently stop in the roadway due to challenges accessing side streets or on-street parking.
- Key intersections at May Street and Belmont Avenue would be improved with traffic signals, turn lanes, and safety enhancements for people walking and biking.
- Other intersections along 12<sup>th</sup> and 13<sup>th</sup> Street would be improved with traffic calming measures to make crossing the street safer.
- A safe crosswalk across 12<sup>th</sup> Street after (south of) the 12<sup>th</sup>/13<sup>th</sup> Street merge will be explored to improve pedestrian and bicycle access and connections.
- One-way bike facilities simplify connections to planned bike lanes beyond the project study area.
- Separated bike lanes on May Street support Safe Routes to Schools goals and neighborhood connections.
- Gathering spaces are limited to typical curb extensions at intersections or other locations where parking is removed.








Design elements that could require ODOT Design Exception approval for Design Alternative 1:

The following design elements, as shown in the typical street cross sections, have been identified as potentially requiring ODOT Design Exception approval. This list will be confirmed with ODOT.






1. Travel lane width and gutter:
  - ODOT recommended minimum width is 11' excluding the gutter unless a smooth transition is provided from the gutter pan to the roadway surface
  - Proposed width is 11' including the gutter along 13th St and May St.
2. Separated bike lane width, excluding buffers:
  - ODOT recommended minimum width is 7' (NACTO's desired minimum width is 6')
  - Proposed widths are 6' (13<sup>th</sup> St) and 5' (May St)

### Preliminary Evaluation for Design Alternative 1:

This preliminary evaluation highlights key evaluation criteria and rates the design alternative based on its alignment with the project goals.

Operational Capacity/LOS		The evaluation for operational capacity is not based on alignment with project goals but how the roadway is anticipated to function for vehicular traffic based on the typical street cross sections proposed.
Traffic Calming		Two-way vehicle travel on 12 <sup>th</sup> and 13 <sup>th</sup> Street should contribute slower traffic through the Heights.
Parking		The reduction in on-street parking is likely similar to the adopted TSP alternative, however parking is not provided along 13 <sup>th</sup> Street.
Economy		Impacts to businesses may be less severe on 12 <sup>th</sup> Street where parking is maintained.
A Local Destination		12 <sup>th</sup> Street functioning as a “main street” maintains and enhances this street as a destination.
Comfort and Connections		Two-way travel locates bike lanes where drivers can anticipate behavior and allows for easier connections to planned bike lanes.
Opportunity for Placemaking		There are limited opportunities for expanded gathering areas along 12 <sup>th</sup> and 13 <sup>th</sup> Streets. The south entry could become a community gateway.

### Legend for Preliminary Evaluation

-  Very good alignment with project goals
-  Good alignment with project goals
-  Average alignment with project goals
-  Poor alignment with project goals
-  Undesirable alignment with project goals

## DESIGN ALTERNATIVE 2 – ONE LANE, ONE-WAY CIRCULATION

This alternative reduces 12<sup>th</sup> Street and 13<sup>th</sup> Street to one lane of one-way traffic in each direction. This alternative was developed to slow traffic through the Heights, provide shared space for walking and biking, and provide on-street parking on 12<sup>th</sup> and 13<sup>th</sup> Streets. For this alternative:

- 12<sup>th</sup> Street is designed as a “Parking Street” with on-street parking on both sides of the street.
- 13<sup>th</sup> Street is designed as a “Green Street” with a shared use path for people walking and biking and a wider planting area for healthy trees and landscaping.

A mini roundabout at 13<sup>th</sup>/May and a double roundabout at 13<sup>th</sup>/12<sup>th</sup>/Belmont help reduce impacts to traffic flow (compared to a traffic signal) for the one lane, one-way roadways.

The sketches below show how the change to traffic and the allocation of space on 12<sup>th</sup> and 13<sup>th</sup> Streets might look:

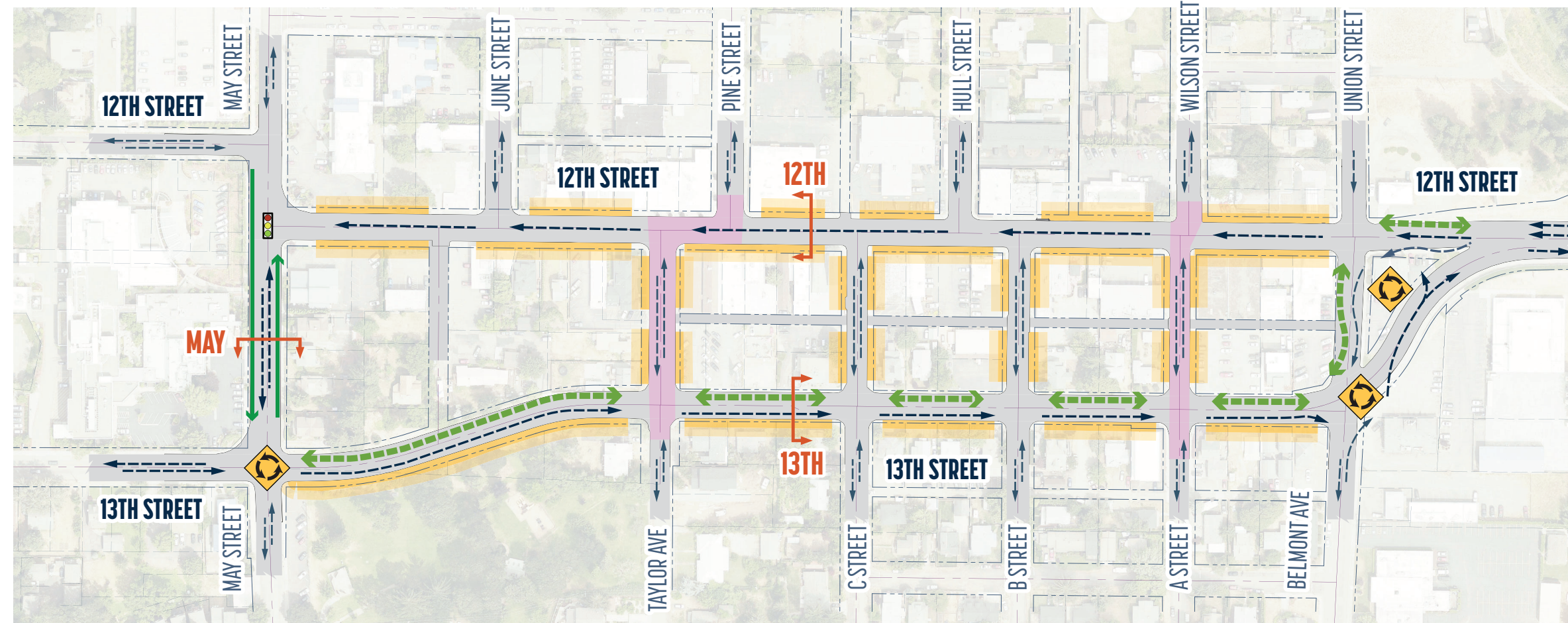


12<sup>th</sup> Street – looking north



13<sup>th</sup> Street – looking south





## LEGEND

- Right of Way
- Parcels
- Center Line
- Travel Lane - City Street
- Travel Lane - ODOT
- Traffic Signal, See Note 1
- Bike Lane
- Shared Use Path
- Parallel Street Parking
- Enhancement to Improve East/West Connections
- Roundabout

## NOTES

1. See intersection concepts for channelization at intersections.



## 13th STREET "GREEN STREET"



(50' R/W + [2] 5' Utility Easements)

### EXAMPLE OF SHARED USE PATH- 13TH STREET



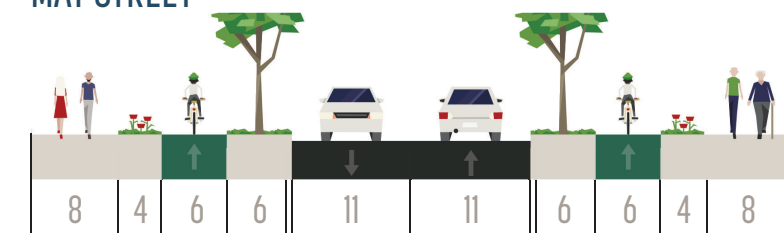
Source: MAG

## 12th STREET "PARKING STREET"



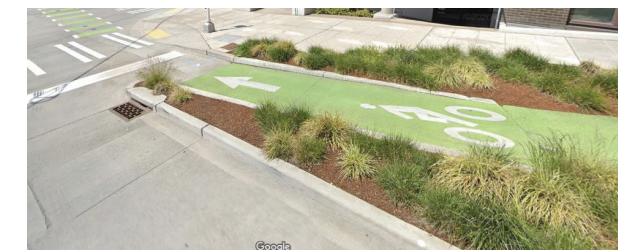
(60' R/W)

## MAY STREET



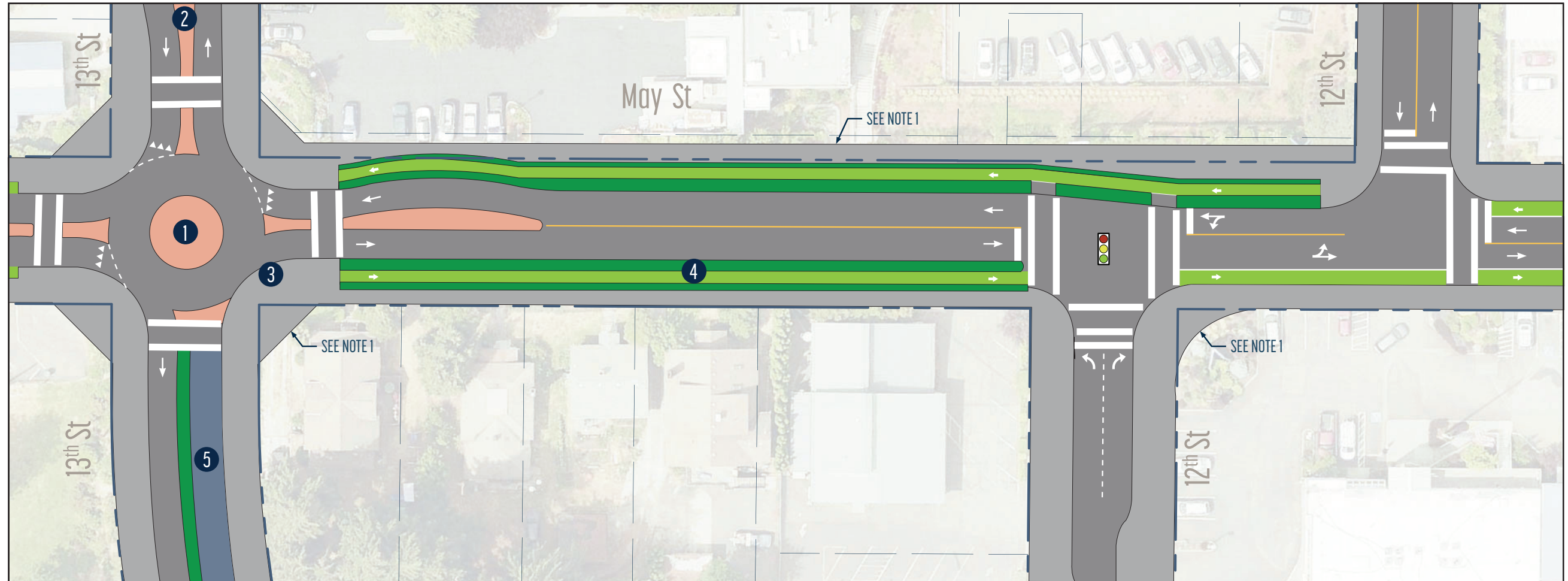
(60' R/W + 10' Easement)

### EXAMPLE OF RAISED VEGETATION SEPARATED BIKE LANE - MAY STREET



Source: Google Maps





**1** Roundabout with Paved Center Circle



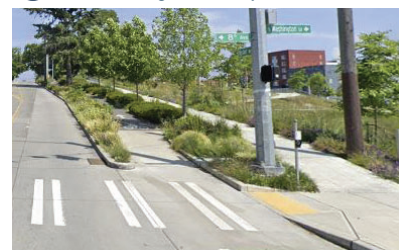
**2** Paved Splitter Island at Roundabout to Accommodate Truck/ Bus Access



**3** Bike Ramps at Roundabout



**4** Raised, Vegetation Separated Bike Lane



**5** Shared Use Path Along Road



### LEGEND









- Right of Way
- Parcel Lines
- Roadway
- Raised Pavement for Truck Access
- Sidewalk
- Planting
- Bike Lane
- Shared Use Path

### NOTES

1. Limits of sidewalk extend to R/W or existing back of walk, whichever is further.
2. Trees to be located in a later design phase.
3. Existing driveway locations are not shown and will be incorporated in a later design phase.



### LEGEND

-  Right of Way
-  Parcel Lines
-  Roadway
-  Raised Pavement for Truck Access
-  Sidewalk
-  Planting
-  Bike Lane
-  Shared Use Path

### NOTES

1. Trees to be located in a later design phase.
2. Existing driveway locations are not shown and will be incorporated in a later design phase.

#### 1 Double Roundabout (See discussion below)



Source: MassDOT

#### 2 Placemaking Opportunity



Source: DeepRoot

#### 3 Bike Ramps at Roundabout



Source: Google maps streetview



#### 4 Rectangular Rapid Flash Beacon (RRFB) at Crosswalk



Source: Carmanah.com

#### 5 Shared Use Path Along Road



Source: MAG

### ROUNDBOAT DISCUSSION

1. The design shown for the double roundabout is conceptual and should only be considered an illustration of potential traffic flow. The actual extents of the roundabout design and potential property impacts will be refined if recommended as part of a refined concept and traffic analysis.

#### Potential Traffic Engineering Impacts:

A traffic study evaluating impacts to all modes of travel will be completed after the design alternatives have been reviewed with the URAB, URAC, and ODOT. Based on the project team's understanding of existing and projected traffic volumes the following impacts may be anticipated for Design Alternative 2 (these anticipated impacts will be confirmed as part traffic study):

- Congestion for vehicular traffic is anticipated to be the most severe with this Design Alternative, leading to the greatest potential for traffic diversion to routes around the Heights, which may impact neighborhoods.
- The volume of traffic projected for the 13<sup>th</sup> Street at May Street intersection may be too great for a single lane mini-roundabout to serve efficiently. A larger roundabout with more right-of-way impacts may be required (e.g. to accommodate westbound to northbound right turns).
- A smaller single-lane roundabout at the junction of 12<sup>th</sup> Street and 13<sup>th</sup> Street may function adequately in the near term, but in the long term a double lane roundabout may be required to better manage congestion.

#### Key Characteristics of Design Alternative 2 include:

- Reducing 12<sup>th</sup> and 13<sup>th</sup> Streets to one-lane of traffic will significantly increase traffic congestion.
- Roundabouts at key intersections help maintain traffic flow and minimize traffic delays (compared to traffic signals) at intersections.
- On-street parking is provided on 12<sup>th</sup> Street (both sides) and 13<sup>th</sup> Street (west side only).
  - Note: the current adopted plan for 12<sup>th</sup> and 13<sup>th</sup> Streets eliminates half of the parking on each street to accommodate planned bike lanes.
- Reducing traffic to one lane may impact loading/unloading for larger trucks that currently stop in the roadway due to challenges accessing side streets or on-street parking.
- A mini-roundabout, which provides a smaller footprint than a traditional roundabout, at 13<sup>th</sup>/May can accommodate car, bus, and truck traffic and helps to minimize and impacts to adjacent properties.
- The large double roundabout at 13<sup>th</sup>/12<sup>th</sup>/Belmont consolidates multiple intersections into a single design, however, the large footprint has the potential to impact multiple properties.
- Other intersections along 12<sup>th</sup> and 13<sup>th</sup> Street would be improved with traffic calming measures to make crossing the street safer.
- A shared use path provides a slow, comfortable place for people walking and biking.
- Separated bike lanes on May Street support Safe Routes to Schools goals and neighborhood connections.
- Opportunities for gathering spaces are larger than what can be provided in Alternative 1 by expanding into the furnishing/planting zone and parking lane at intersections or other locations where parking is removed.



Design elements that could require ODOT Design Exception approval for Design Alternative 2:

The following design elements, as shown in the typical street cross sections, have been identified as potentially requiring ODOT Design Exception approval. This list will be confirmed with ODOT.






1. Travel lane width and gutter:
  - ODOT recommended minimum width is 11' excluding the gutter unless a smooth transition is provided from the gutter pan to the roadway surface
  - Proposed width is 11' including the gutter along May St.
2. Separated bike lane width, excluding buffers:
  - ODOT recommended minimum width is 7' (NACTO's desired minimum width is 6')
  - Proposed width is 6' (May St)

### Preliminary Evaluation for Design Alternative 2:

This preliminary evaluation highlights key evaluation criteria and rates the design alternative based on its alignment with the project goals.

Operational Capacity/LOS		The evaluation for operational capacity is not based on alignment with project goals but how the roadway is anticipated to function for vehicular traffic based on the typical street cross sections proposed.
Traffic Calming		Narrow one-lane roadways adjacent to parking in many locations will slow vehicular traffic.
Parking		The reduction in on-street parking is less than the reduction in parking for the adopted TSP alternative.
Economy		Reducing to one lane will increase congestion and may make access to parking and businesses more difficult, but easier for people walking/biking.
A Local Destination		Congestion and slower traffic may encourage more walking and biking within the neighborhood and shift pass through traffic to other routes.
Comfort and Connections		Wider planting areas increase separation from the roadway and narrow roadways to shorten street crossings for people moving east and west.
Opportunity for Placemaking		The expanded furnishing zone provides more opportunities for gathering and the large double roundabout provides opportunities for a gateway.

### Legend for Preliminary Evaluation

-  Very good alignment with project goals
-  Good alignment with project goals
-  Average alignment with project goals
-  Poor alignment with project goals
-  Undesirable alignment with project goals

### DESIGN ALTERNATIVE 3 – HYBRID CIRCULATION

This alternative changes how the streets are used and how traffic and people move through the Heights. This alternative converts the existing one-way traffic on 13<sup>th</sup> Street to two-way traffic while maintaining one-way traffic on 12<sup>th</sup> Street. For this alternative:

- 12<sup>th</sup> Street is designed as more of a “People Street” with diagonal parking, a two-way protected bike lane (or cycle track), and opportunities for gathering spaces.
- 13<sup>th</sup> Street is designed to function as more of a “Traffic Street” with a center turn lane and on-street parking.

This alternative was developed to balance the community’s desires to maintain traffic flow, accommodate on-street parking, and create safe places for people biking and gathering. Key intersections at 12<sup>th</sup> and 13<sup>th</sup> Streets along May Street and Belmont Avenue would be controlled with traffic signals.

The sketches below show how the change to traffic and the allocation of space on 12<sup>th</sup> and 13<sup>th</sup> Streets might look:

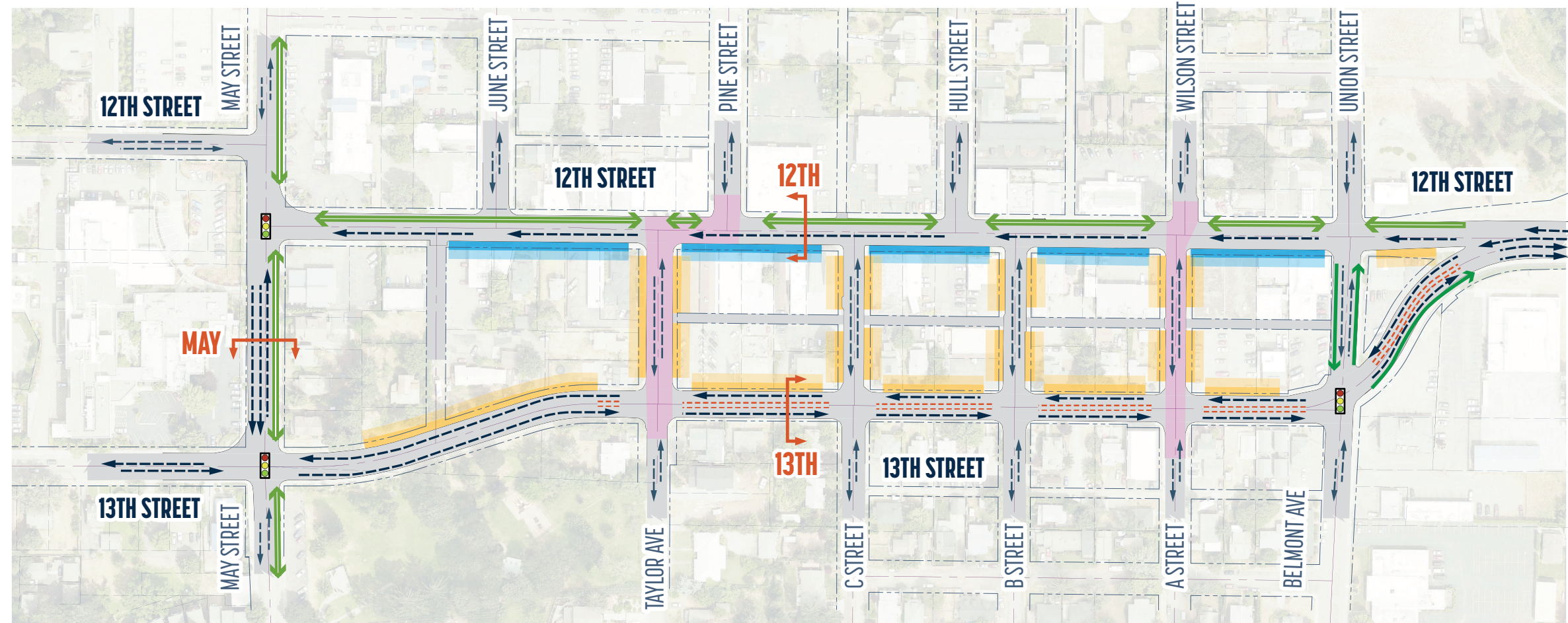


12<sup>th</sup> Street – looking north



13<sup>th</sup> Street – looking south





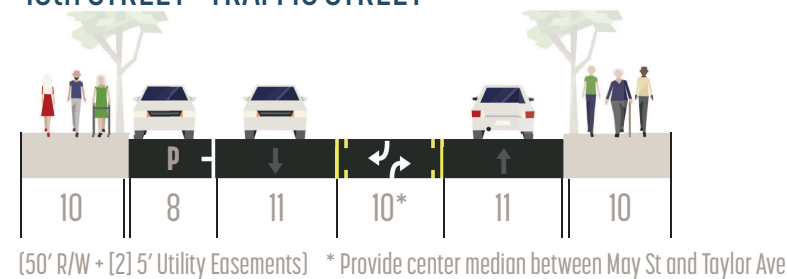
LEGEND


NOTES

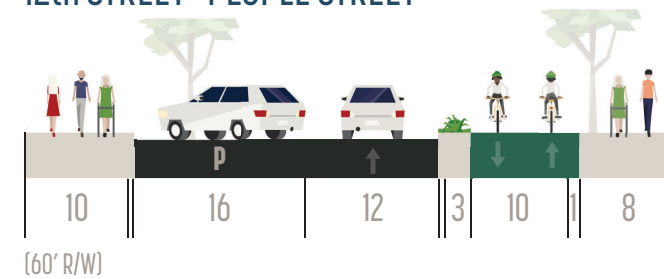
1. See intersection concepts for channelization at intersections.



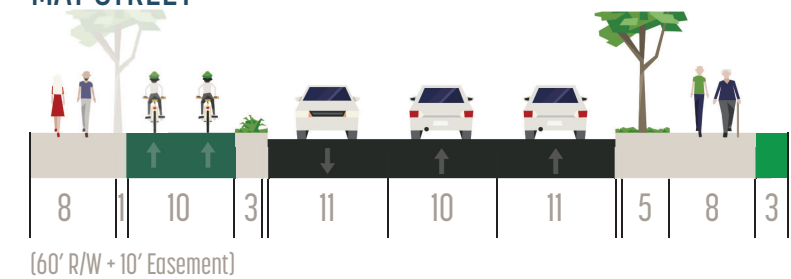
13th STREET "TRAFFIC STREET"



12th STREET "PEOPLE STREET"



MAY STREET

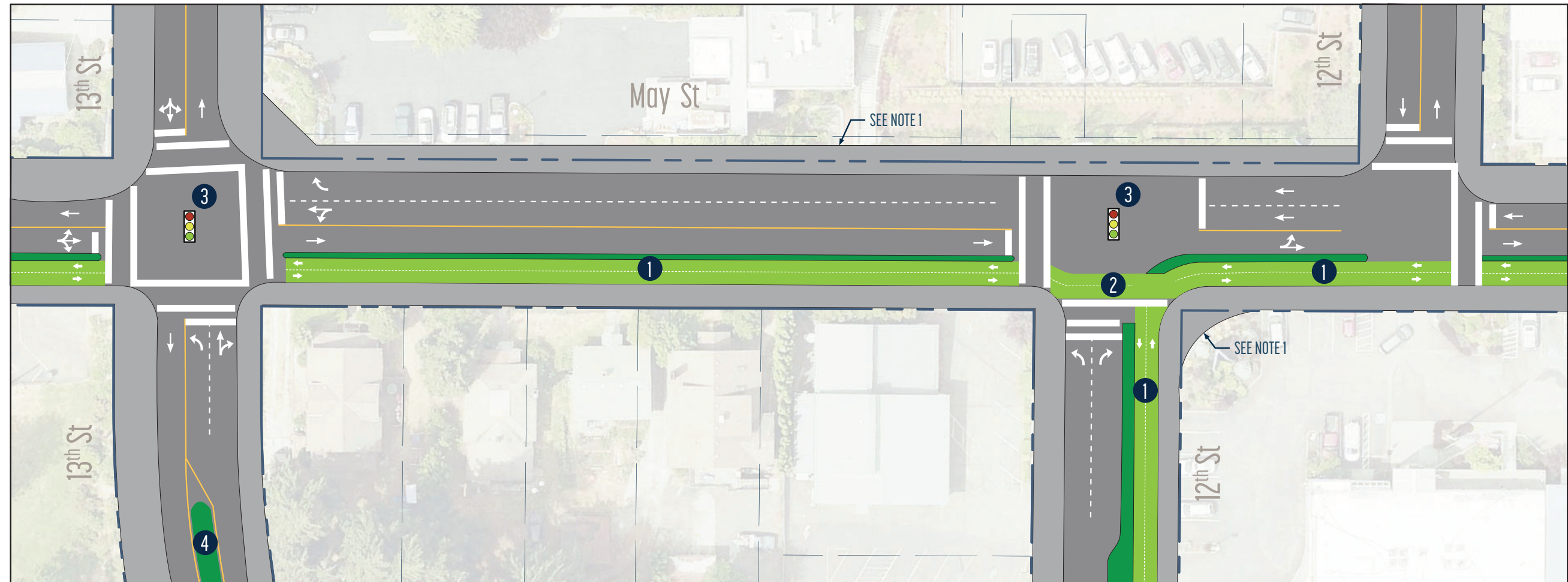


EXAMPLE OF TWO WAY CYCLE TRACK - 12TH STREET AND MAY STREET



Source: Philadelphia magazine, NV5





**LEGEND**

- Right of Way
- Parcel Lines
- Roadway
- Sidewalk
- Planting
- Bike Lane

**NOTES**

1. Limits of sidewalk extend to R/W or existing back of walk, whichever is further.
2. Trees to be located in a later design phase.
3. Existing driveway locations are not shown and will be incorporated in a later design phase.

**1 Two Way Cycle Track**



Source: Philadelphia Magazine, NV5

**2 Two-Way Cycle Track at Intersection**



Source: Roy Symons

**3 Bicycle Traffic Signal**



Source: SDOT

**4 PLANTED MEDIAN**



Source: MIG

**1 Two Way Cycle Track**



Source: Philadelphia Magazine, NV5

**2 Traffic Calming - Raised Crosswalk**

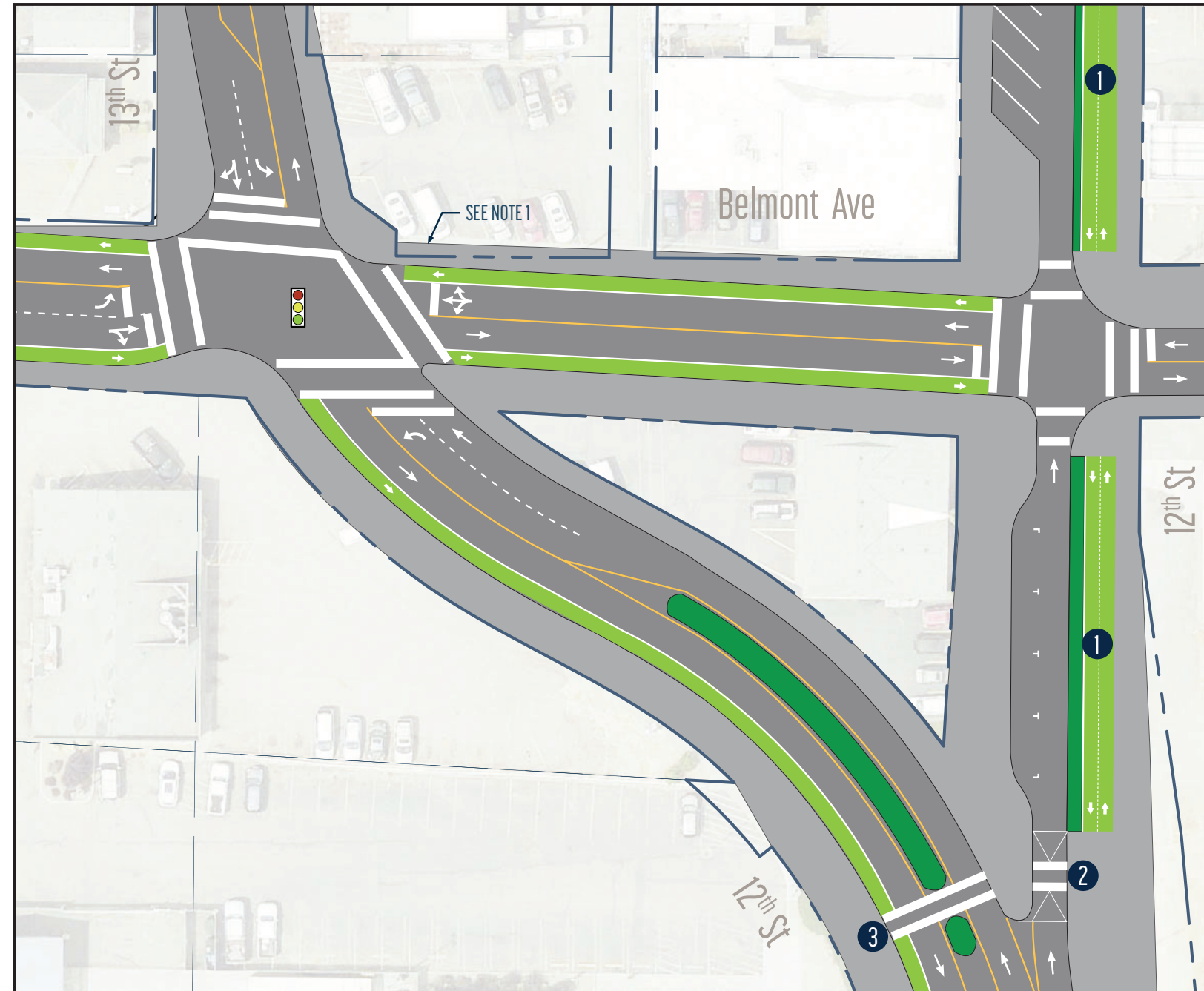


Source: Creative Commons

**3 Enhanced Crosswalk at Planted Median**



Source: MIG



**LEGEND**

- Right of Way
- Parcel Lines
- Roadway
- Sidewalk
- Planting
- Bike Lane

**NOTES**

1. Limits of sidewalk extend to R/W or existing back of walk, whichever is further.
2. Trees to be located in a later design phase.
3. Existing driveway locations are not shown and will be incorporated in a later design phase.





#### Potential Traffic Engineering Impacts:

A traffic study evaluating impacts to all modes of travel will be completed after the design alternatives have been reviewed with the URAB, URAC, and ODOT. Based on the project team's understanding of existing and projected traffic volumes the following impacts may be anticipated for Design Alternative 3 (these anticipated impacts will be confirmed as part traffic study):

- 13<sup>th</sup> Street will become the through route and will attract far more traffic than 12<sup>th</sup> Street. However, the addition of the center turn lane should improve vehicular traffic flow compared to Design Alternative #1.
- Conversion to two-way traffic may create more opportunities for conflict between people driving and people biking at the 13<sup>th</sup> Street intersection on May Street compared to one-way traffic.
- The selection of a traffic calming treatment for the northbound entry to the 12<sup>th</sup> Street "People Street" segment must be compatible with Hood River Fire and EMS, as well as transit operations.
- Although transit does not currently stop on 12<sup>th</sup> or 13<sup>th</sup>, future northbound stops on 13<sup>th</sup> Street must be in-lane and would stop traffic. Future stops on 12<sup>th</sup> Street could be in-lane or off to the side if parking is removed.

#### Key Characteristics of Design Alternative 3 include:

- Two-way traffic and a center turn lane on 13<sup>th</sup> help keep traffic moving as people make turns and access on-street parking.
- One travel lane and angle parking on 12<sup>th</sup> slows traffic and allows more space for people.
- Angle parking on one side of 12<sup>th</sup> should provide more parking compared to parallel parking.
- Reducing traffic to one lane on 12<sup>th</sup> may impact loading/unloading for larger trucks that currently stop in the roadway due to challenges accessing side streets or on-street parking.
- Key intersections at May Street and Belmont Avenue would be improved with traffic signals, turn lanes, and safety enhancements for people walking and biking.
- Other intersections along 12<sup>th</sup> and 13<sup>th</sup> Street would be improved with traffic calming measures to make crossing the street safer.
- A safe crossing of 12<sup>th</sup> Street after (south of) the 12<sup>th</sup>/13<sup>th</sup> Street merge will be explored to enhance bicycle and pedestrian connections and provides a gateway opportunity as traffic enters the "People Street."
- A two-way cycle track on 12<sup>th</sup> Street and May Street provide safe protected places for people biking but require transitions to one-way bike lanes beyond the project study area.
- On-street angle parking on 12<sup>th</sup> creates opportunities for large gathering spaces at intersections.

Design elements that could require ODOT Design Exception approval for Design Alternative 3:








The following design elements, as shown in the typical street cross sections, have been identified as potentially requiring ODOT Design Exception approval. This list will be confirmed with ODOT.

1. Travel lane width and gutter:
  - ODOT recommended minimum width is 11' excluding the gutter unless a smooth transition is provided from the gutter pan to the roadway surface
  - Proposed width is 11' including the gutter for the southbound travel lane on 13th St and both sides of May St
  - Proposed width is 10' for the inside lane on May St
2. Two-way-left-turn lane:
  - ODOT recommended minimum width is 11'
  - Proposed width is 10' along 13th St
3. On-street parking:
  - ODOT limits parking to parallel parking
  - Proposed parking is angle parking








### Preliminary Evaluation for Design Alternative 3:

This preliminary evaluation highlights key evaluation criteria and rates the design alternative based on its alignment with the project goals.





























Operational Capacity/LOS		The evaluation for operational capacity is not based on alignment with project goals but how the roadway is anticipated to function for vehicular traffic based on the typical street cross sections proposed.
Traffic Calming		The one-lane roadway on 12 <sup>th</sup> Street will slow traffic while on-street parking and opportunities for medians will slow traffic on 13 <sup>th</sup> Street.
Parking		The reduction in on-street parking is anticipated to be less than the reduction in parking for the adopted TSP alternative.
Economy		Providing on-street parking with different approaches for traffic flow on 12 <sup>th</sup> and 13 <sup>th</sup> Streets are aimed at balancing impacts to business.
A Local Destination		Prioritizing 12 <sup>th</sup> Street as a place for people with angle parking, a two-way cycle track, and sidewalks supports the street as a local destination.
Comfort and Connections		The hybrid approach for vehicular traffic balances providing comfortable places for people while maintaining access and connections.
Opportunity for Placemaking		The angle parking layout can accommodate larger gathering areas and the entrance to 12 <sup>th</sup> Street from the south includes a gateway opportunity.

#### **Legend for Preliminary Evaluation**






-  Very good alignment with project goals
-  Good alignment with project goals
-  Average alignment with project goals
-  Poor alignment with project goals
-  Undesirable alignment with project goals

## PRELIMINARY EVALUATION SUMMARY

This graphic presents a side-by-side summary of the preliminary evaluation for each of the preliminary design alternatives and the City's current adopted plan in the TSP. This preliminary evaluation highlights key evaluation criteria and rates each alternative based on its alignment with the project goals.

	Current Adopted Plan TSP	Design Alternative 1 Two lane, Two-way	Design Alternative 2 One lane, One-way	Design Alternative 3 Hybrid
Operational Capacity/LOS				
The evaluation shown for operational capacity for each concept is not based on alignment with project goals but how the roadway is anticipated to function based on the typical street cross sections proposed.				
Traffic Calming				
Parking				
Economy				
A Local Destination				
Comfort and Connections				
Opportunity for Placemaking				

### Legend for Preliminary Evaluation

-  Very good alignment with project goals
-  Good alignment with project goals
-  Average alignment with project goals
-  Poor alignment with project goals
-  Undesirable alignment with project goals