
# THE HEIGHTS STREETSCAPE PLAN

## PHASE 3 – ADDITIONAL DESIGN STUDIES

URBAN RENEWAL AGENCY BOARD
URBAN RENEWAL ADVISORY COMMITTEE

APRIL, 2023

# Presentation Agenda

Phase 3 Scope Overview

Discuss findings and project team recommendations from additional design studies:

1. Design for key intersections (13th/May; 13th/Belmont/12th)
2. East/West street design
3. Refinements to typical street cross sections
4. Bicycle connection to Pacific Ave

Summary of potential parking impacts

Discussion and direction to design team

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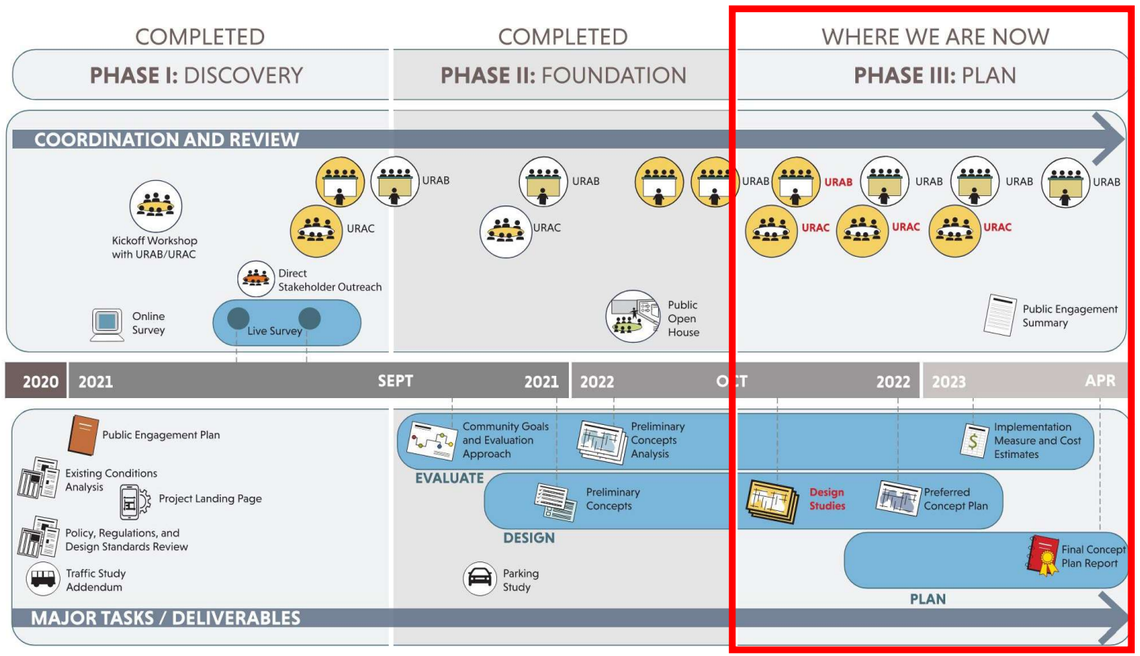
# Develop Preferred Concept and Action Plan




## URA Check-ins:

- Three meetings each with URAC and URAB
- Identical materials for URAC and URAB

1st Check-in: URA to confirm direction based on project team recommendations of design studies

2nd Check-in: Present final concept, begin discussing considerations for implementation plan

3rd Check in: Present draft implementation plan

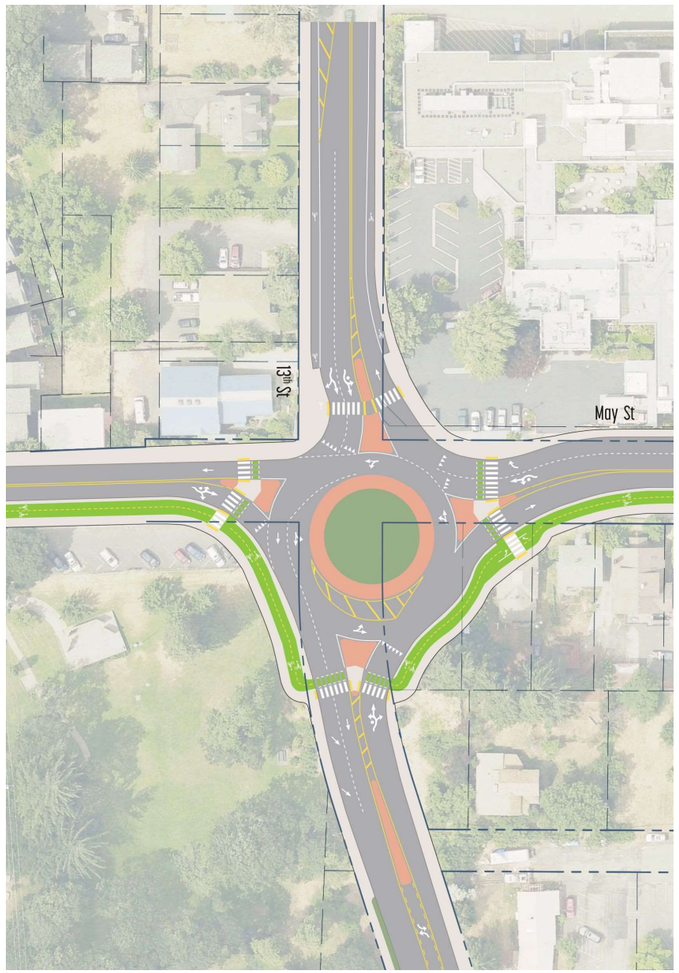
Final Presentation to URAB

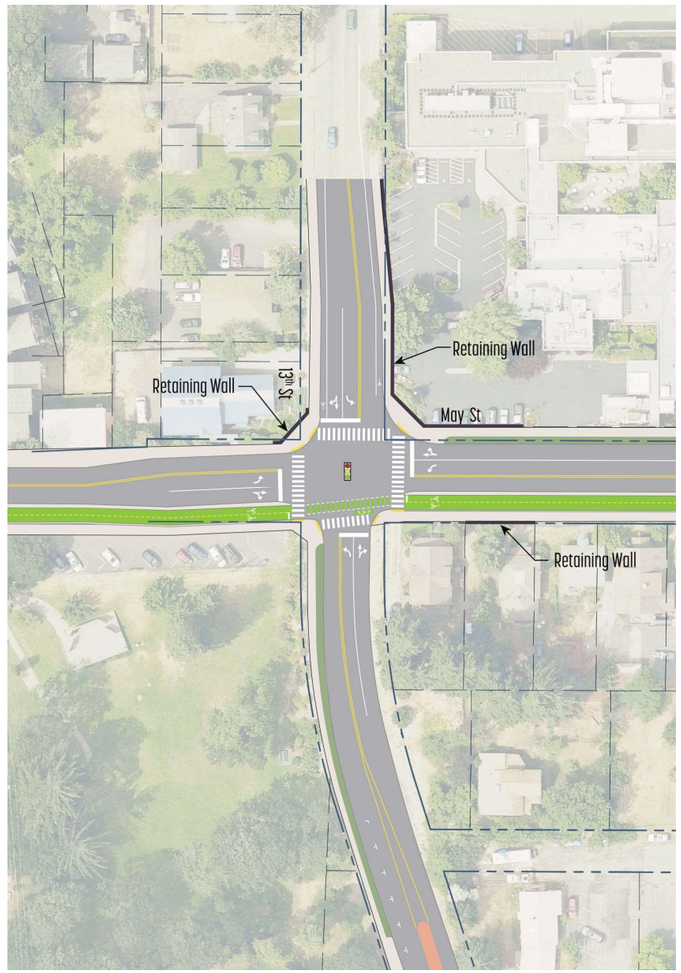
# 1. Design of key intersections

- 13th Street and May Street

- 13th Street, Belmont Avenue, and 12th Street

# 13th/May – Roundabout vs Traffic Signal

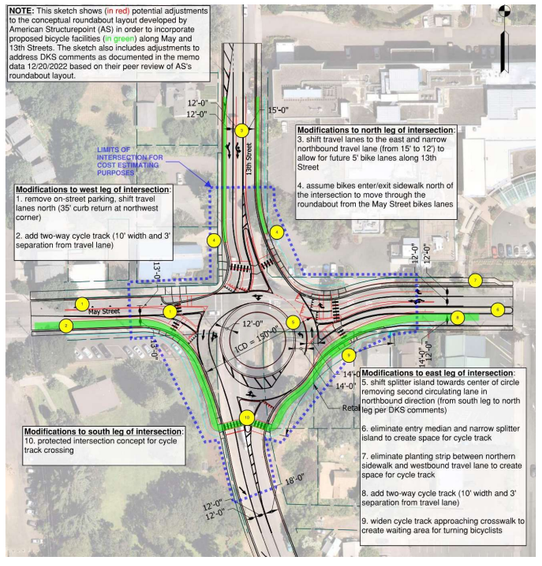


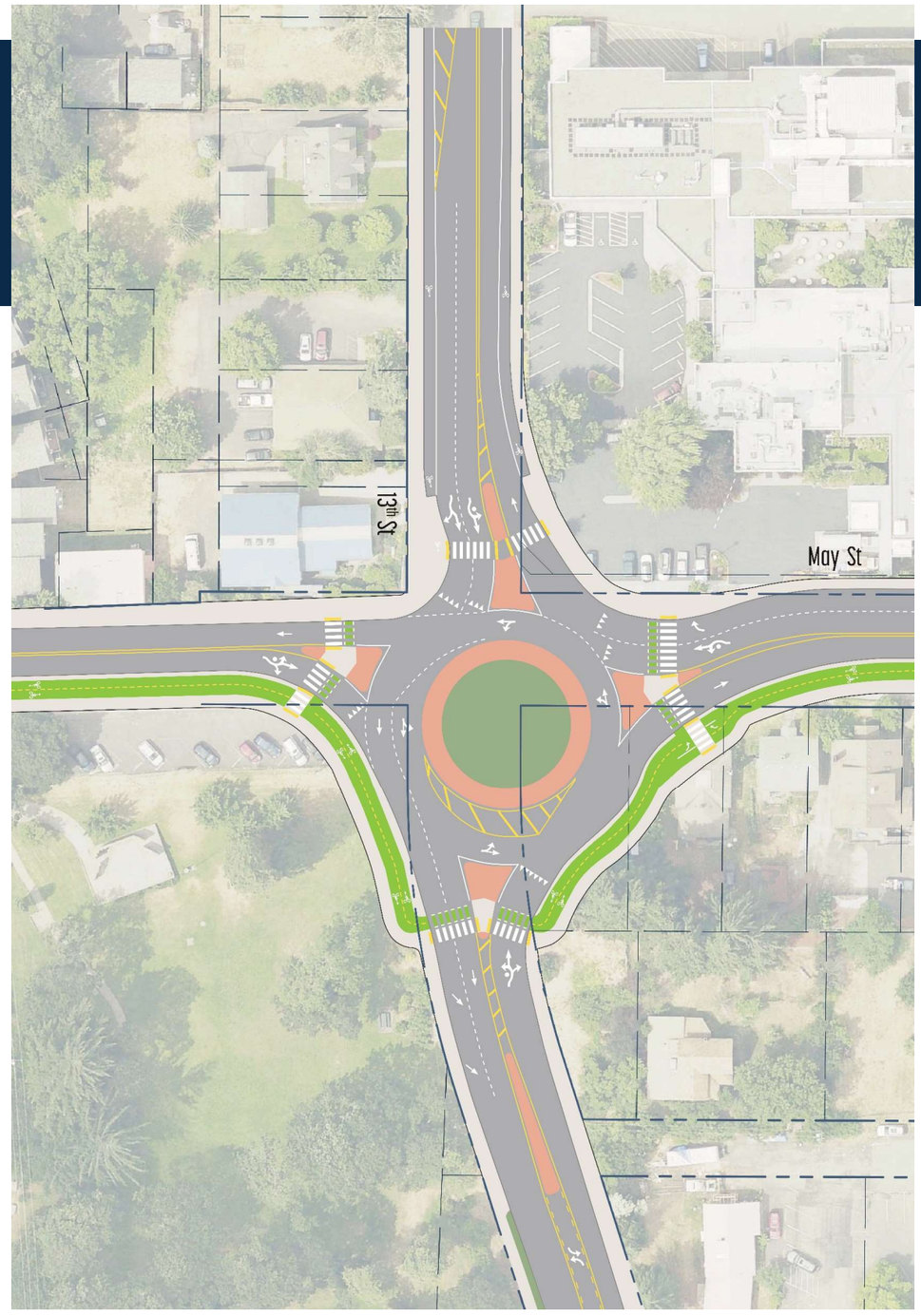



# 13th/May – Roundabout

Refine conceptual roundabout layout:

- Review layout developed by roundabout consultant
- Modify layout to reflect on local traffic needs
- Add bicycle facilities to layout
- Review impacts to parking on 13th Street



# 13th/May – Traffic Signal

Develop a signalized intersection concept to compare to a roundabout and understand:

- Property impacts
- Operational impacts
- Cost differences

# 13th/May – Operational Impacts

Operational Impacts between a traffic signal and roundabout:

Intersection Operations/Delay

**TABLE 1. REFINED INTERSECTION OPERATIONS RESULTS AT 13TH STREET/ MAY STREET (2039 WEEKDAY PM PEAK HOUR)**

| SCENARIO [A] | LOS | DELAY (SEC) | V/C |
|---|---|---|---|
| TSP BUILD | C | 31 | 0.96 |
| SIGNAL (WITHOUT TWO-WAY CYCLE TRACK) | D | 44 | 0.94 [B] |
| SIGNAL (WITH TWO-WAY CYCLE TRACK) | E | 80 | **1.03** |
| ROUNDABOUT | C | 18 [C] | 0.86 |

**Bold and red** indicates a "failing" condition, which could be a v/c ratio of 1.0 or greater or a LOS F.

[C] Note that delay at the roundabout does not take into account delay associated with an enhanced cycle track crossing (such as the use of a rectangular rapid-flashing beacon) on the south leg.

Vehicle Queue Lengths

**Table: 13th Street/May Street Vehicle Queue Lengths**

| INTERSECTION CONTROL | SOUTHBOUND | NORTHBOUND |
|---|---|---|
| SIGNAL W/O 2-WAY CYCLE TRACK | approx. to State St | approx. to A St |
| SIGNAL W/ 2-WAY CYCLE TRACK | beyond Oak St with queues on Oak St | beyond Belmont Ave |
| ROUNDABOUT | approx. 100' | approx. 200' |

Analysis represents year 2039 weekday PM peak hour in the summer

# 13th/May – Potential Property Impacts

<u>NW corner (Behavioral Health Building)</u>:

- Traffic signal impacts corner of property.

<u>NE corner (Main hospital campus)</u>:

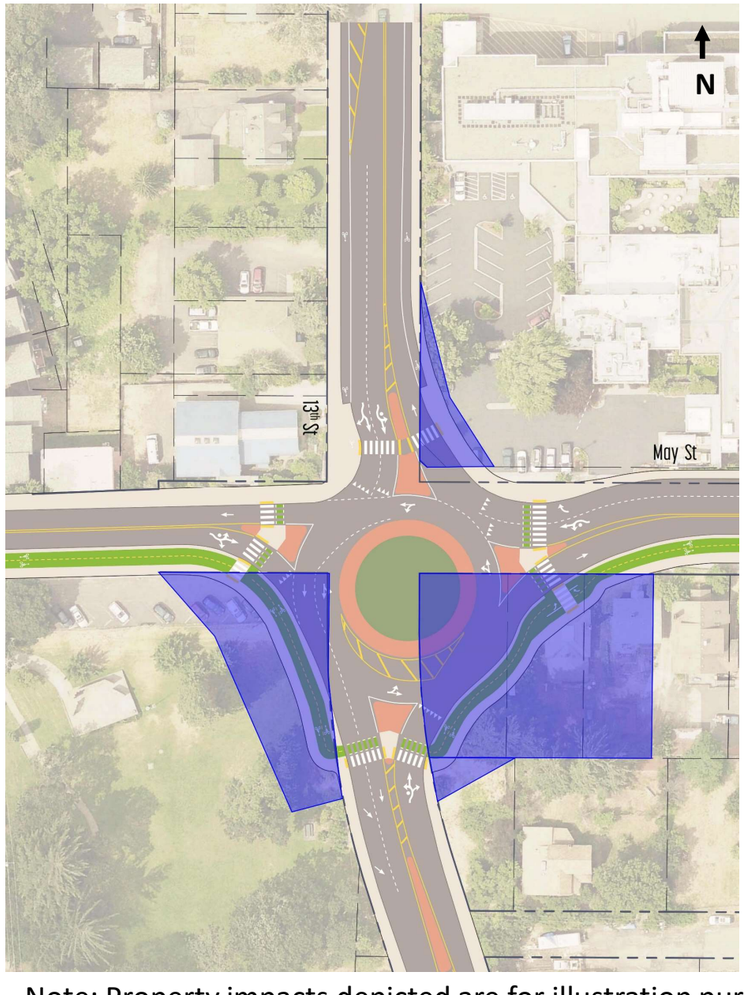
- Traffic signal may have more impact to existing parking lot, however, operational impacts to parking are similar

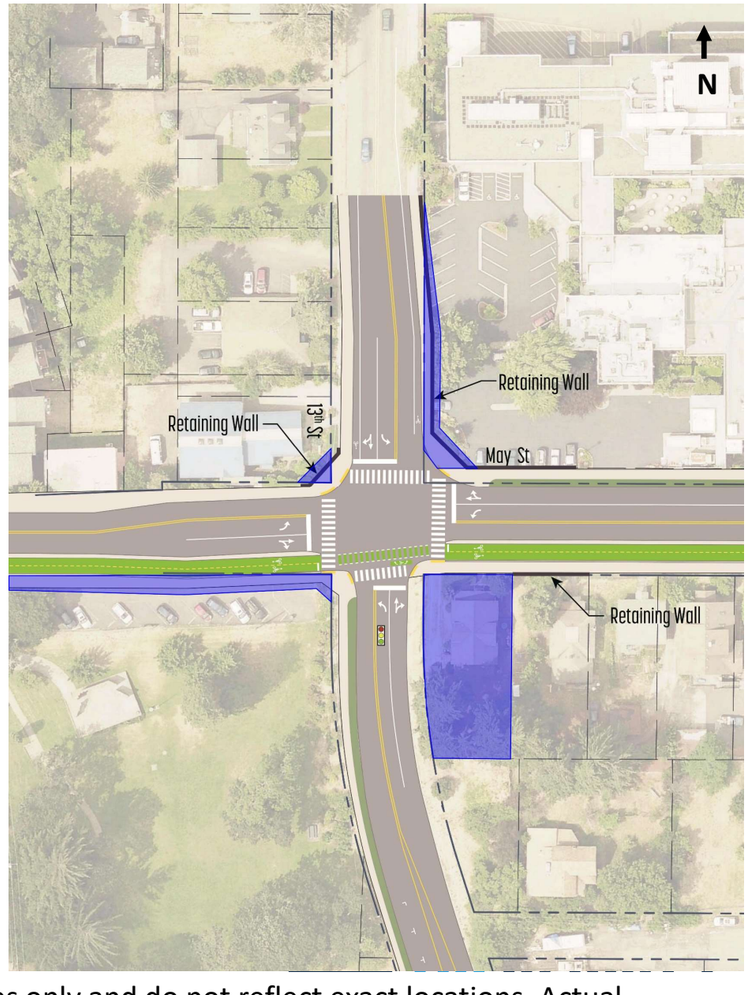
<u>SE corner (Residential lots)</u>:

- Roundabout impacts three full residential lots and requires access to be modified for a fourth. A fifth parcel is also partially impacted.
- Traffic signal impacts one full residential lot.

<u>SW corner (Jackson Park)</u>:

- Roundabout may impact more area and a portion of the existing parking lot.
- Traffic signal may impact less area but could have more impact on the parking lot.




<u>Note</u>: Property impacts depicted are for illustration purposes only and do not reflect exact locations. Actual locations will be identified as a part of future intersection design.

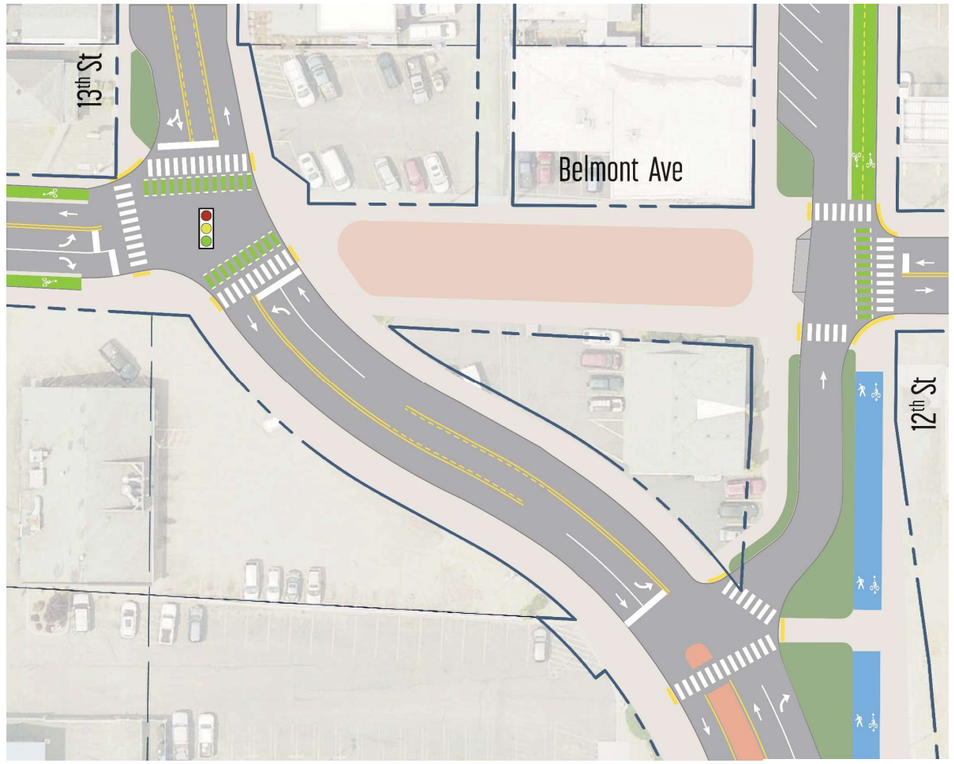
# 13th/May – Recommendation

- Traffic impacts are significantly worse for a traffic signal compared to a roundabout for PM Peak traffic
  - e.g. southbound vehicle queuing beyond Oak St
- Property impacts and costs to implement are more for a roundabout
  - Construction costs could be 130%-140% more for a roundabout than a signal, plus more for R/W acquisition
- Roundabout will have a longer path of travel for people walking and biking across the intersection
- Potential placemaking opportunity at SE corner

<u>Project team and URAC recommendation:</u>

- Roundabout at 13th Street/May Street

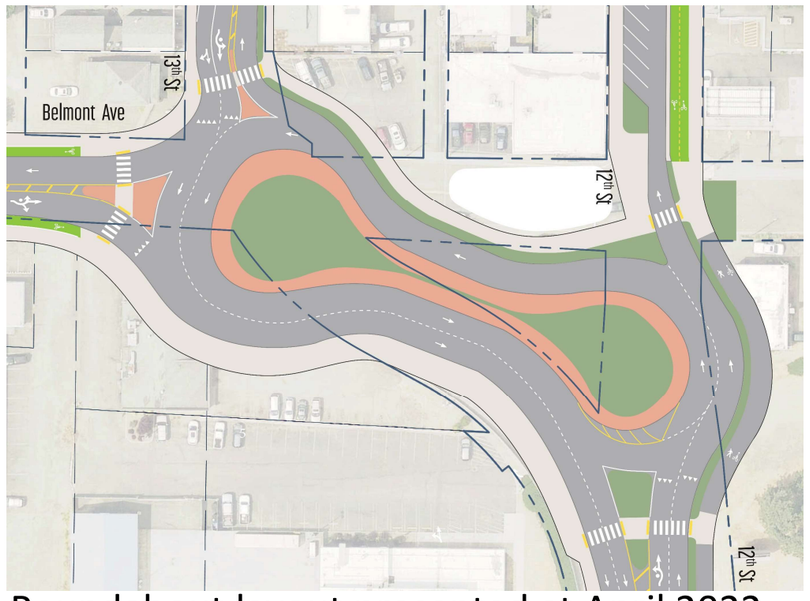
# 13th/Belmont/12th – Roundabout vs Traffic Signal

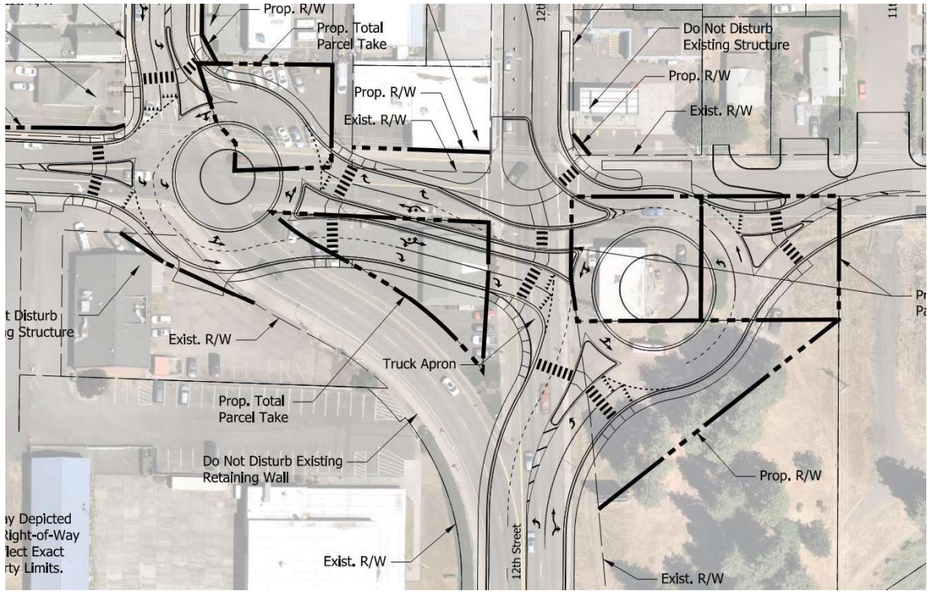
# 13th/Belmont/12th – Roundabout

Identify design and layout considerations for a conceptual double roundabout configuration

- Review layout developed by roundabout consultant
- Add bicycle facilities to layout




Roundabout layout presented at April 2022 open house




Alternate layout developed to reduce property impacts

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# 13th/Belmont/12th – Roundabout

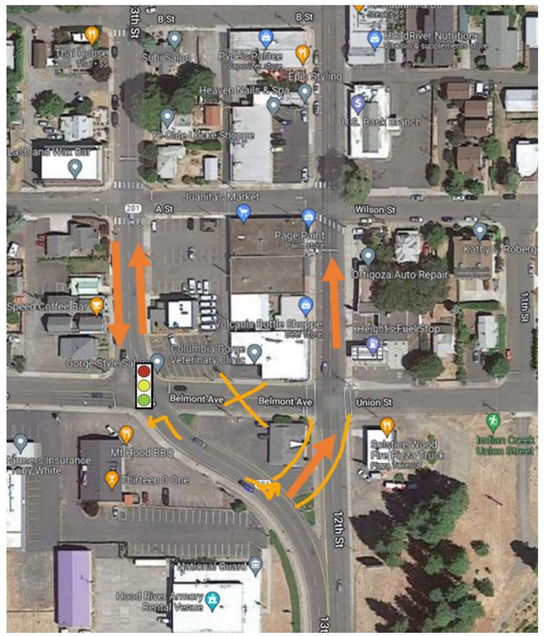
- How to integrate planned bike facilities:
  - Connection south to Pacific Ave
  - Connection to/from Belmont
- Impacts to parking on 13th Street (Belmont Ave and A St)
- Placemaking opportunity


Note: potential bike routing and access depends on the roundabout configuration selected

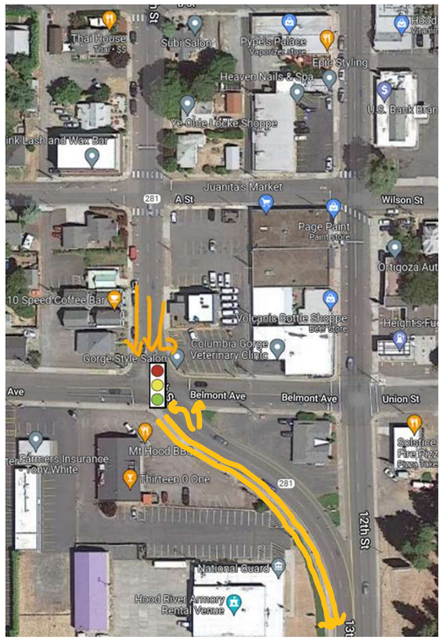
# 13th/Belmont/12th – Traffic signal

Explored four intersection configurations to manage multiple intersections:


Option 1 - One-way eastbound traffic on Belmont




Option 2 – Close Belmont




Option 3 – Widen 13th for 2 SB lanes


Option 4 – One-way westbound traffic on Belmont

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# 13th/Belmont/12th – Traffic signal

Operational impacts between signalized intersection configurations:

**13th Street/ Belmont Avenue Intersection Congestion**

| OPTION | LOS | DELAY (SEC) | V/C |
|---|---|---|---|
| TRAFFIC SIGNALS (13TH STREET) | | | |
| OPTION 1 – ONE-WAY EB | C | 20 | 0.98 |
| OPTION 2 – CLOSE BELMONT | B | 17 | 0.83 |
| OPTION 3 – TWO LANES SB | B | 18 | 0.92 |
| OPTION 4 – ONE-WAY WB | D | 39 | 0.92 |

**Table 2: 13th Street/ Belmont Avenue Vehicle Queue Lengths**

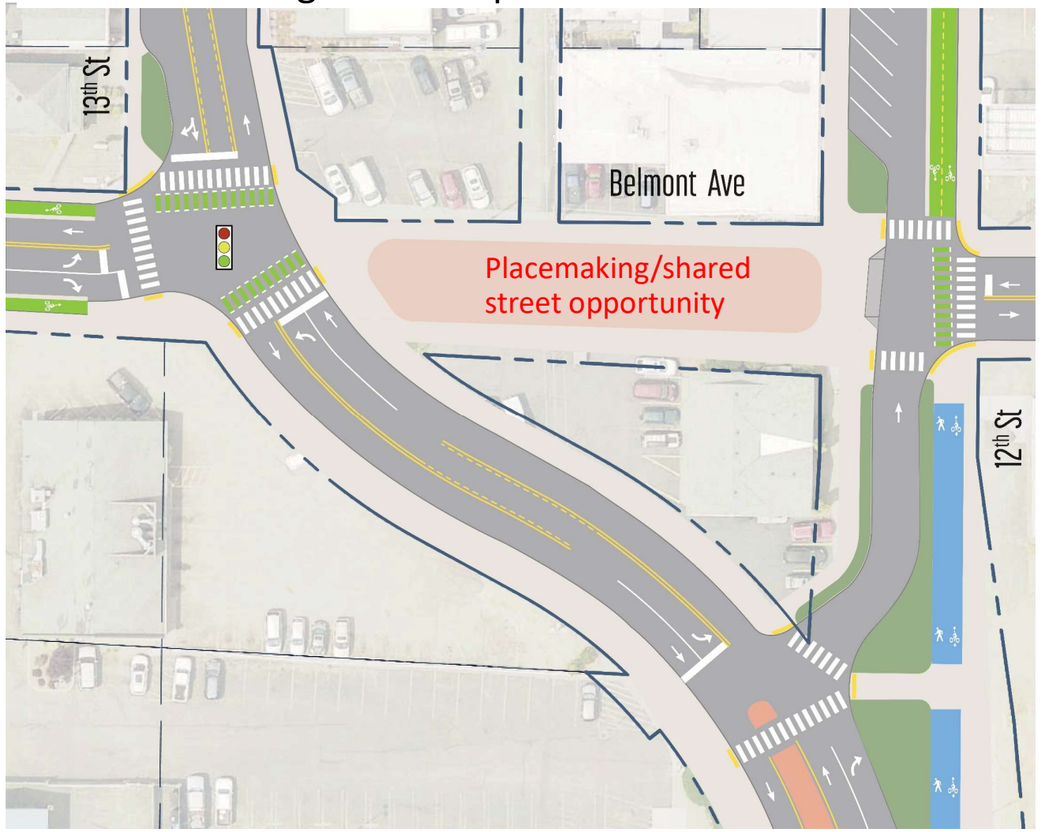
| OPTION | HCM CALCULATED QUEUE LENGTH | |
|---|---|---|
| | Southbound | Northbound |
| OPTION 1 – ONE-WAY EB | 1000′ | 650′ |
| OPTION 2 – CLOSE BELMONT | 1125′ | 450′ |
| OPTION 3 – TWO LANES SB | 375′ | 650′ |
| OPTION 4 – ONE-WAY WB | 1375′ | 850′ |

Analysis represents year 2039 weekday PM peak hour in the summer

*To the south: Nix Dr – 600′; Pacific Ave – 1100′,

*To the north: B Street 450′; Taylor Ave – 1000′; May St - 1400′

Preferred configuration: Option 2 – Close Belmont



# 13th/Belmont/12th – Operational Impacts

Operational Impacts between the double roundabout and traffic signal (option 2):

## Intersection Operations/Delay

**13th Street/ Belmont Avenue Intersection Congestion**

| OPTION | LOS | DELAY (SEC) | V/C |
|---|---|---|---|
| TRAFFIC SIGNALS (13TH STREET) | | | |
| OPTION 2 – CLOSE BELMONT | B | 17 | 0.83 |
| ROUNDABOUTS | | | |
| 13TH STREET/ BELMONT AVENUE | A | 8 | 0.56 |
| 12TH STREET/ BELMONT AVENUE | A | 3 | 0.66 |

Analysis represents year 2039 weekday PM peak hour in the summer
Roundabout analysis completed by American Structurepoint, Inc, May 31, 2022

## Vehicle Queue Lengths

**13th Street/ Belmont Avenue Vehicle Queue Lengths**

| OPTION | CALCULATED QUEUE LENGTHS | |
|---|---|---|
| | Southbound | Northbound |
| TRAFFIC SIGNALS (13TH STREET) | | |
| OPTION 2 – CLOSE BELMONT | 1,125’ | 450’ |
| ROUNDABOUTS | | |
| 13TH STREET/ BELMONT AVENUE | 100’ | - |
| 12TH STREET/ BELMONT AVENUE | - | 200’ |

Analysis represents year 2039 weekday PM peak hour in the summer
Roundabout analysis completed by American Structurepoint, Inc, May 31, 2022
*To the south: Nix Dr – 600’; Pacific Ave – 1100’,
*To the north: B Street 450’; Taylor Ave – 1000’; May St - 1400’

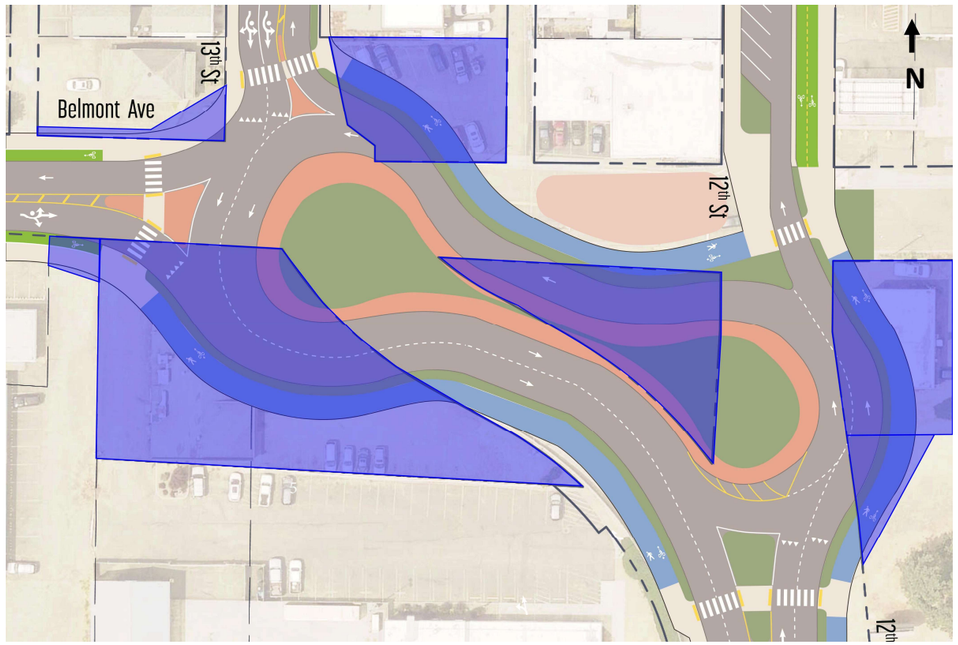
# 13th/Belmont/12th – Potential Property Impacts

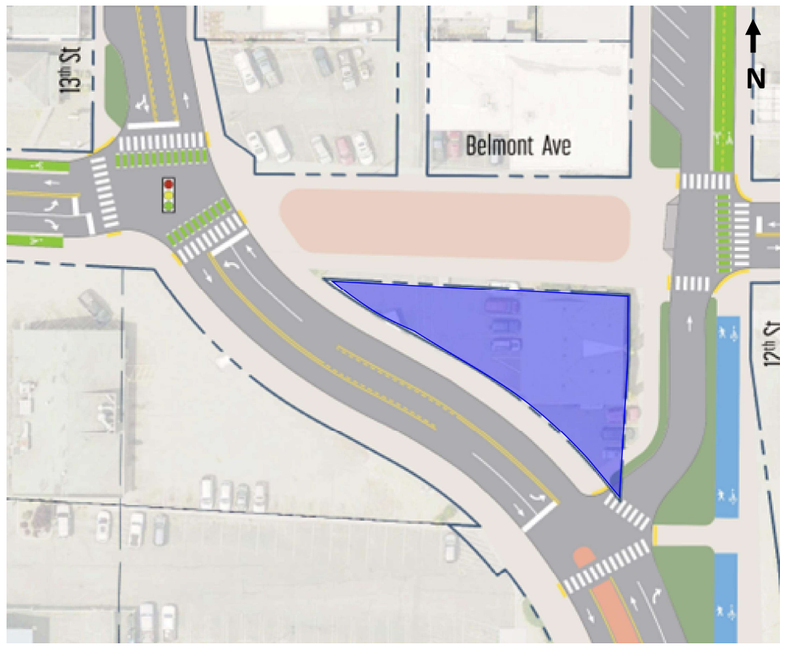
<u>Double roundabout</u>:

- Impacts five full parcels
- Includes three buildings with businesses
- Impacts parts of two parcels

<u>Traffic signal</u>:

- Impacts central parcel and businesses between 12th and 13th Streets

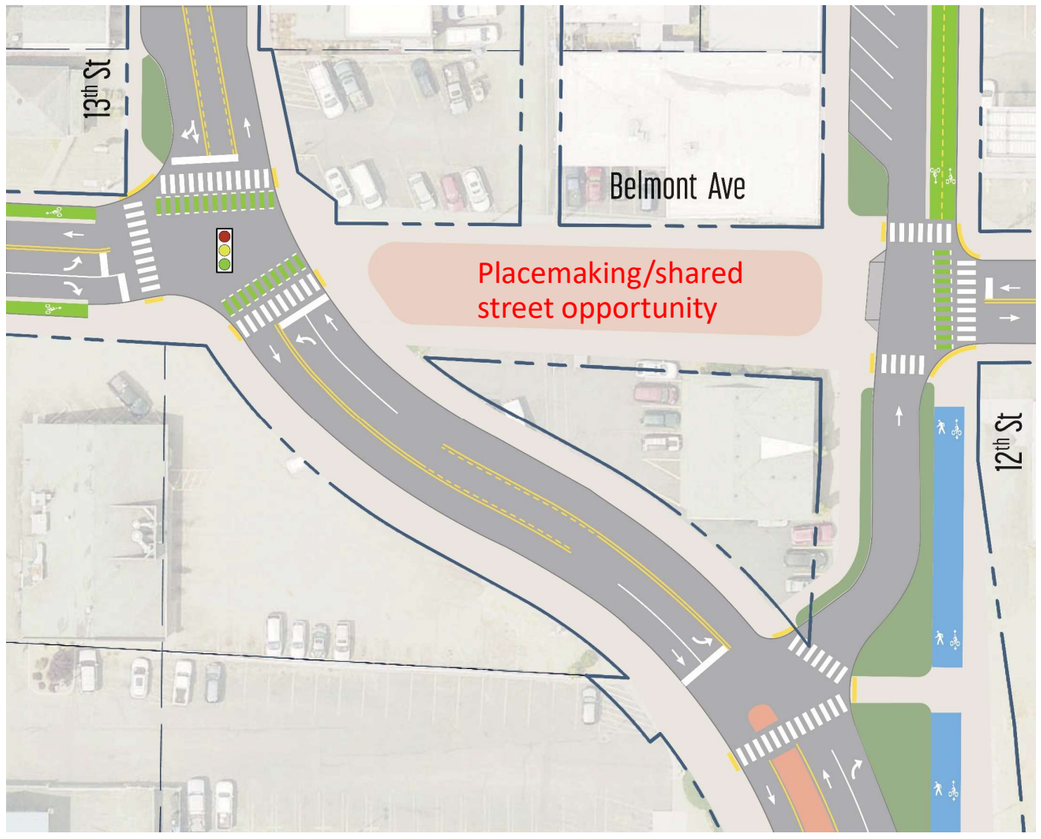



<u>Note</u>: Property impacts depicted are for illustration purposes only and do not reflect exact locations. Actual locations will be identified as a part of future intersection design.

# 13th/Belmont/12th – Recommendation

- A double roundabout significantly impacts properties and businesses compared to a traffic signal.
- Traffic impacts for a signal include long backups on 13th Street for PM Peak traffic but do not impact major intersections.
- A traffic signal provides more direct access for people walking and biking.
- Costs to implement a double roundabout are more
  - Construction costs could be 170%-180% more for a double roundabout plus more for R/W acquisition




<u>Project team and URAC recommendation:</u>

- Traffic signal at 13th/Belmont/12th

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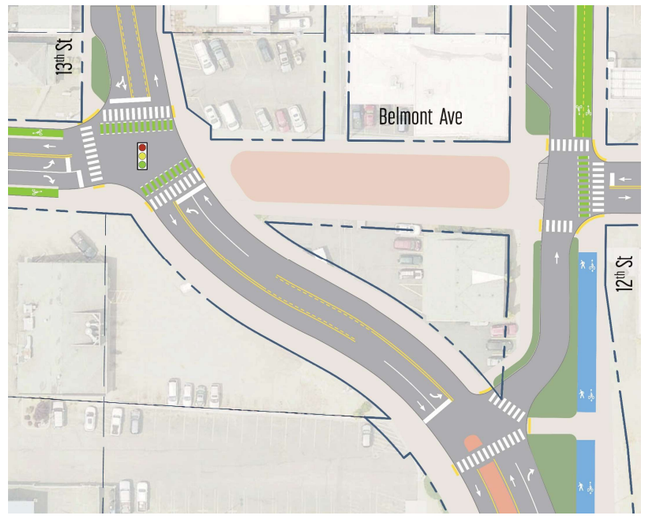
# Combined intersection operations

For project team recommendations:

- Along 13th Street – traffic at key intersections are expected to operate independently

- On May Street – westbound vehicle queues are not anticipated to impact operations of the traffic signal at 12th Street

# 2. East/West street design

explore opportunities for maximizing on-street parking while providing enhanced access for people walking and biking along Taylor Avenue and A Street

1. keep existing configuration
2. 1- and 2-way streets
3. only 1-way streets

# East/West Street Design: 1- and 2-way streets

One-way streets

(Taylor Ave and A St)

- Contra flow bike lanes

Two-way streets

(B St and C St)

~ 12 additional parking stalls from existing

# What is a contra-flow bike lane?

- Allows people to bike in the opposite direction of one-way traffic (i.e. one direction for cars, the other direction for bikes only)
- Benefits:
  - Connectivity and access for people biking in both directions
  - Reduces wrong way riding and riding on the sidewalk
- Typical applications:
  - Where large numbers of bikes already ride the wrong way
  - Where alternate routes require excessive out of direction travel or are unsafe or uncomfortable
  - To provide direct access to destinations
  - Where two-way connections for bike facilities are needed along one-way streets
  - Work best on low speed, low volume streets
- Special consideration should be given before implementing adjacent to parking

Information on this page is from the NACTO Urban Bikeway Design Guide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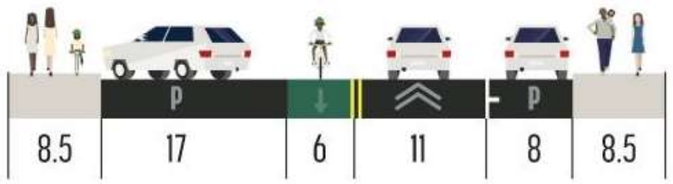
# East/West Street Design: 1- and 2-way streets

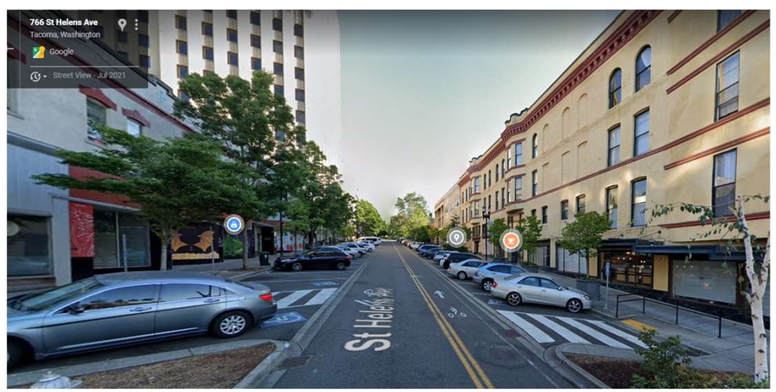
## TAYLOR AVE - WESTBOUND TRAFFIC ONLY

(60' R/W)




13 ON-STREET PARKING STALLS
(+1 STALLS FROM EX. CONDITIONS)

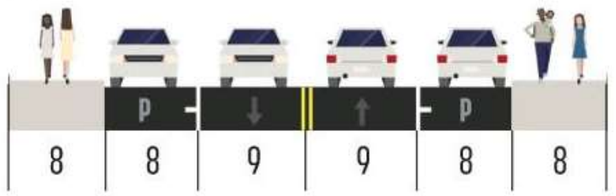
Note: existing parking stall counts based on Nov 29, 2021 Heights District Parking Study




Contra flow bike lane example with angle parking (Tacoma, WA)

## B AND C STREETS TWO-WAY TRAFFIC ALTERNATIVE

(50' R/W)



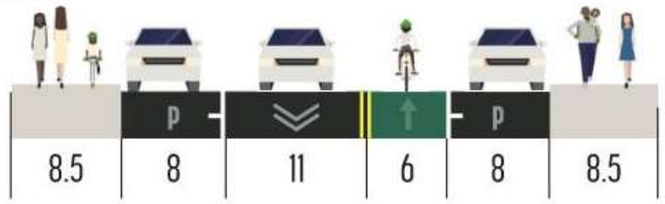

C ST:
11 ON-STREET PARKING STALLS
(+4 STALLS FROM EX. CONDITIONS)

B ST:
11 ON-STREET PARKING STALLS
(+2 STALLS FROM EX. CONDITIONS)

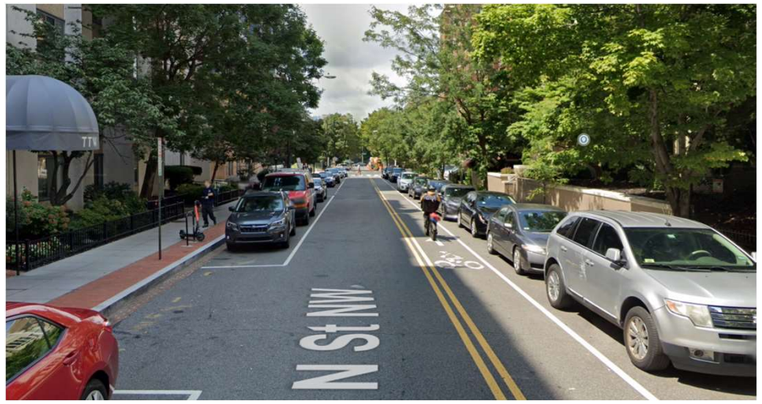

Example of 34' curb to curb width parking both sides

## A STREET - EASTBOUND TRAFFIC ONLY

(50' R/W)



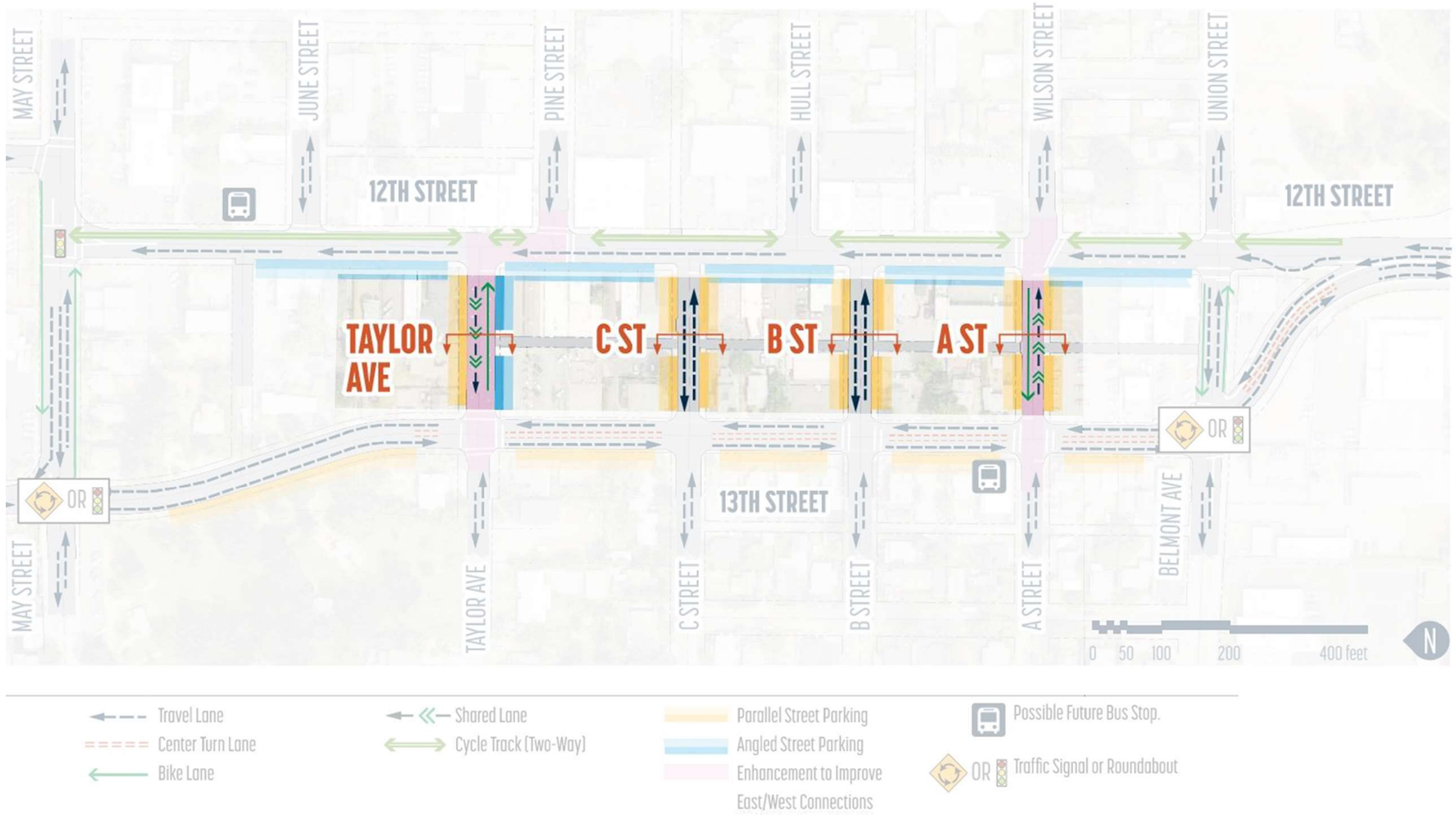

10 ON-STREET PARKING STALLS
(+5 STALLS FROM EX. CONDITIONS)




Contra flow bike lane example with parallel parking (Washington DC)

# East/West Street Design: 1- and 2-way streets

- Less predictable for people driving
- ~ 12 additional parking stalls from existing
- Narrow roadways (17’-18’) have been reviewed with the Fire Marshall



# East/West Street Design: 1-way streets

Alternating one-way streets

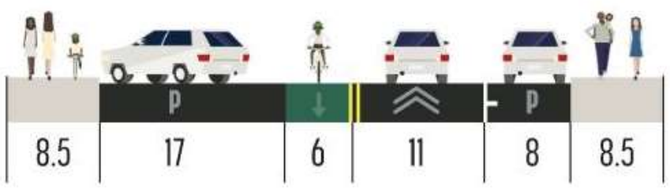
- More predictable for people driving
- Contra flow bike lanes

~ 15 additional parking stalls from existing

# East/West Street Design: 1-way streets

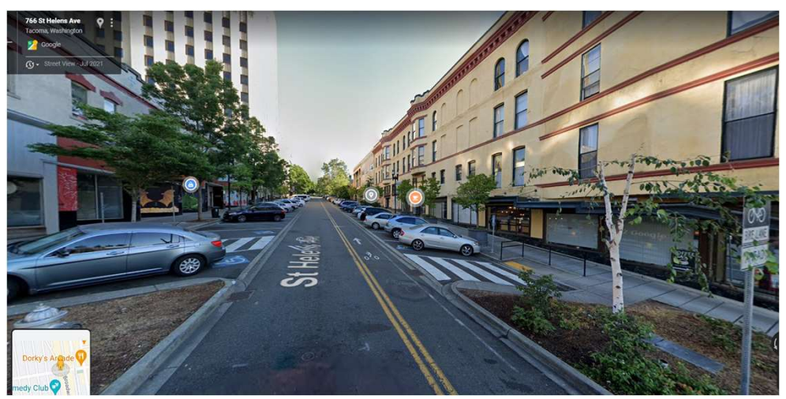
## TAYLOR AVE - WESTBOUND TRAFFIC ONLY

(60' R/W)




13 ON-STREET PARKING STALLS
(+1 STALLS FROM EX. CONDITIONS)

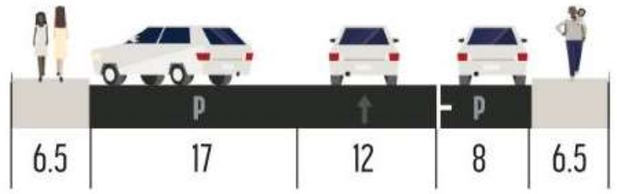
Note: existing parking stall counts based on Nov 29, 2021 Heights District Parking Study




Contra flow bike lane example with angle parking (Tacoma, WA)

## B AND C STREETS ONE-WAY TRAFFIC ALTERNATIVE

(50' R/W) *cross section shows direction of travel on B Street




C ST:
11 ON-STREET PARKING STALLS
(+4 STALLS FROM EX. CONDITIONS)

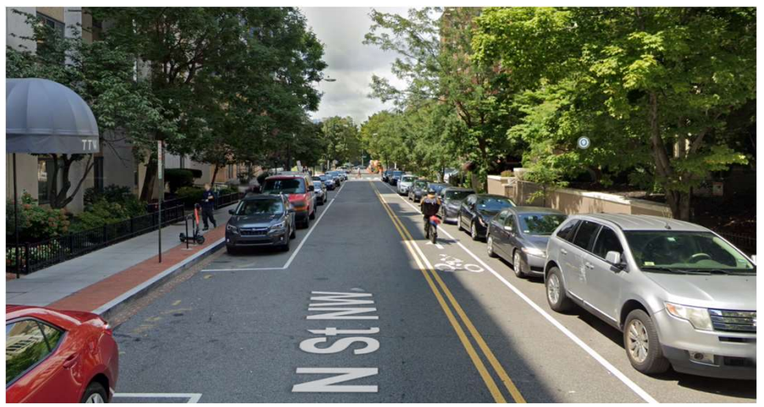
B ST:
14 ON-STREET PARKING STALLS
(+5 STALLS FROM EX. CONDITIONS)

Example parking area with parallel and angle parking
(note: example is ~3' wider curb to curb)

## A STREET - EASTBOUND TRAFFIC ONLY

(50' R/W)

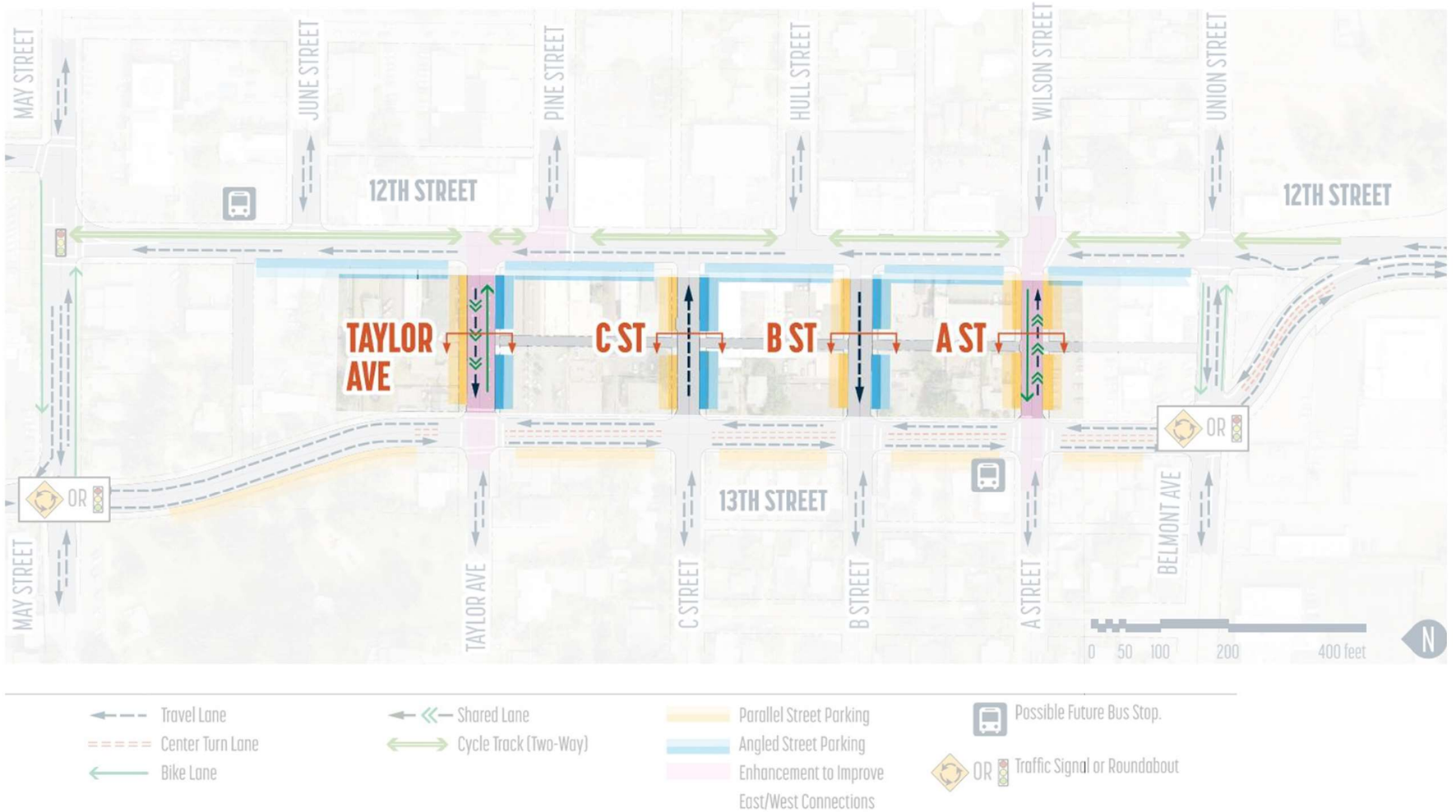

10 ON-STREET PARKING STALLS
(+5 STALLS FROM EX. CONDITIONS)




Contra flow bike lane example with parallel parking (Washington DC)

# East/West Street Design: 1-way streets

- More predictable for people driving
- ~ 15 additional parking stalls from existing
- Narrow roadways (12’-17’) have been reviewed with the Fire Marshall



# East/West Street Design – Recommendation

<u>Project team recommendation:</u>

- One-way streets to provide more predictability for people driving
- Include contra flow bike lanes for improved connectivity and access for people biking
- Fire and emergency services are ok with one-way streets and lane widths
- Parallel parking both sides of street to:
  - provide more flexibility for a variety of vehicle sizes, and
  - allow for a wider travel lane compared to having angle parking on one of the sides of the street, or to allow for wider sidewalks

<u>URAC recommendation</u>: one-way streets

- Comments: consider options for locating contra flow bike lanes on the sidewalk side of parked cars

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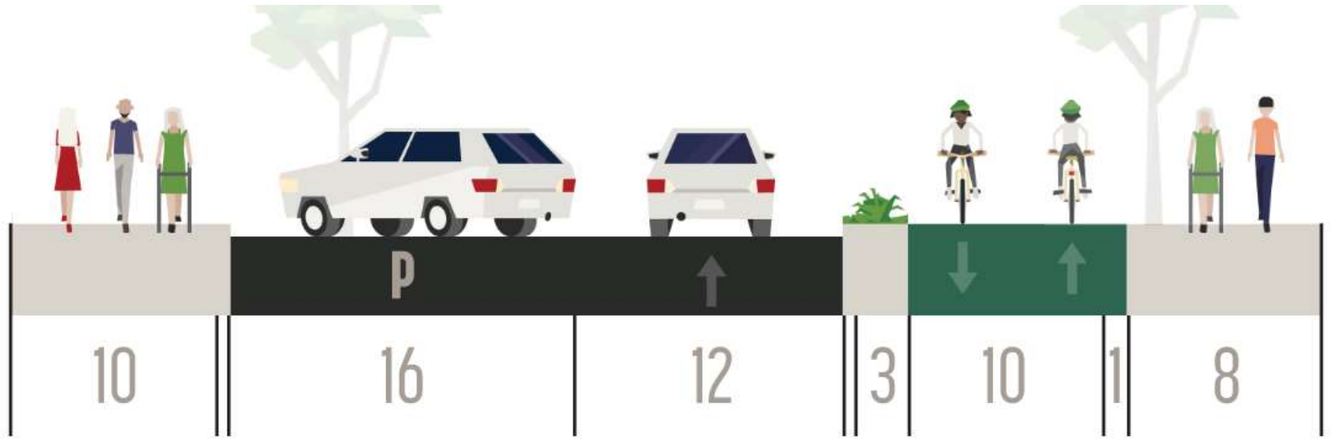
# 3. Refinements to typical street cross sections

develop a streetscape that reflects the unique characteristics and elements needed along each corridor

# 12th Street Cross Section Refinements

Verify reallocation of 60’ R/W:

- for parking access
- for cycle track and at interface between sidewalk and travel lane
- for implementation including maintenance and cost considerations




Original typical street cross section looking north

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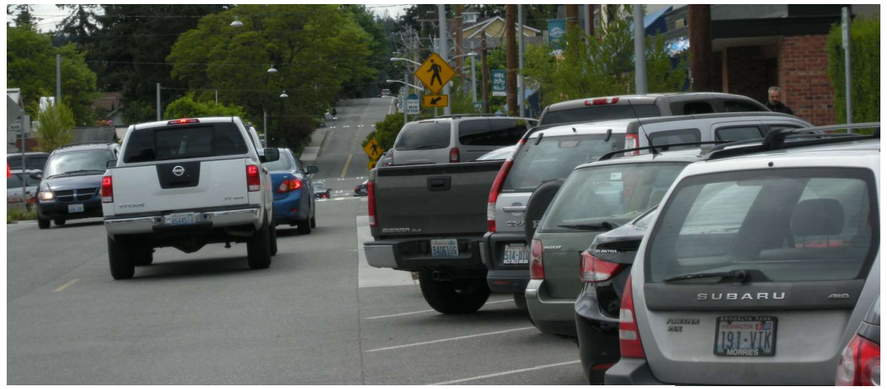
# 12th Street Cross Section Refinements

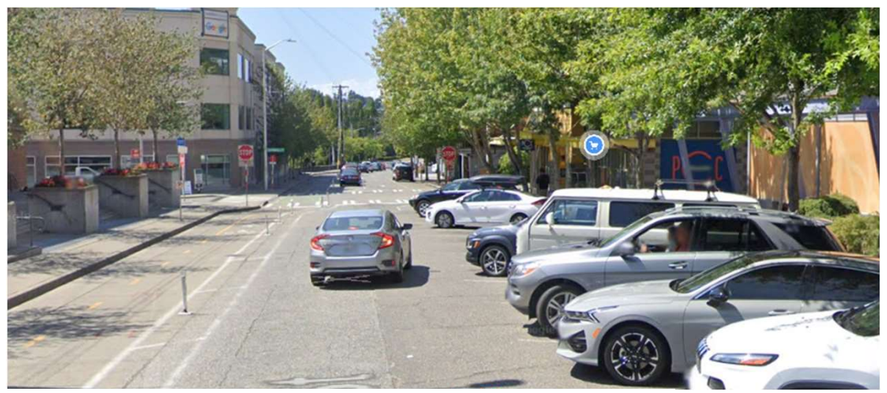
Parking access – parking stall and travel lane configuration

- Based on local needs (e.g. vehicle size) and desired turnover rate (length and width of stall)
- Performance of “similar” conditions

- City design standards for parking lots shall conform to *The Dimensions of Parking,* by the Urban Land Institute and the National Parking Association
  - 17.5’ parking width, 12’ lane width
- *Parking Spaces*, by Mark Childs
  - 17.5’ parking width, 11’ lane width




Basis for initial dimensions



Similar but slightly wider (42’) street

# 12th Street Cross Section Refinements

Two-way cycle track configuration

- Based on anticipated use and best practices
- To balance the needs of all street users

- NACTO Urban Bikeway Design Guide
  - 12’ desired, 8’ min in constrained conditions
  - 3’ desired separation adjacent to parking to prevent dooring collisions

- International Guidance

CROW Design Manual (Netherlands)

| Rush hour intensities (two directions, bikes per hour) | Cycle Track Width (feet) |
|---|---|
| 0 - 50 | 8 |
| 50 - 150 | 10 |
| > 750 | 13 |

London Cycle Design Standards

| | Desirable minimum width (m) (see note 1) | Absolute minimum width (m) (see note 1) | Safety strip to carriageway kerb edge minimum width (m) (see note 2) |
|---|---|---|---|
| One Way | 2.0 | 1.5 | 0.5 |
| Two Way | 3.0 | 2.0 | 0.5 |

**Notes:**

1. 0.5m should be added for each side of the track that is bounded (e.g. by a wall, railings fence or hedge)
2. Safety strip to carriageway kerb edge minimum width should be 1.0m adjacent to frequently accessed parked cars

# 12th Street Cross Section Refinements

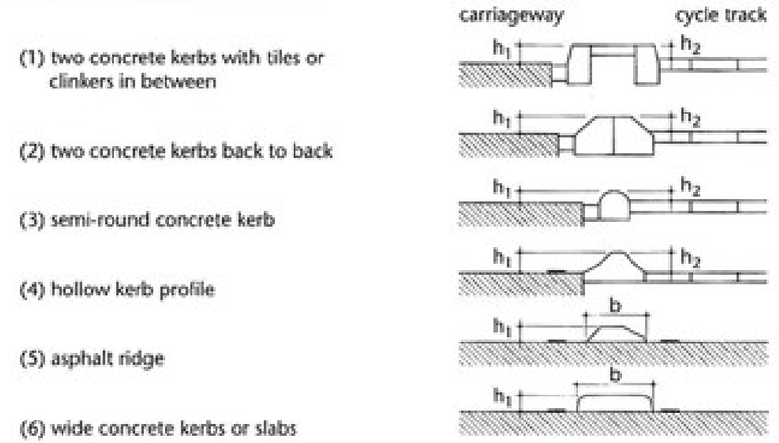
Level of protection and separation

- From roadway and sidewalk
- Considerations for constructability, maintenance, and cost

Other considerations

- Type of separation (considerations for people biking, driving and walking; maintenance, snow removal)
- Configuration at curb ramps and driveways
- Impact to effective sidewalk width (e.g. due to shy zone at buildings and along cycle track)
- Emergency access

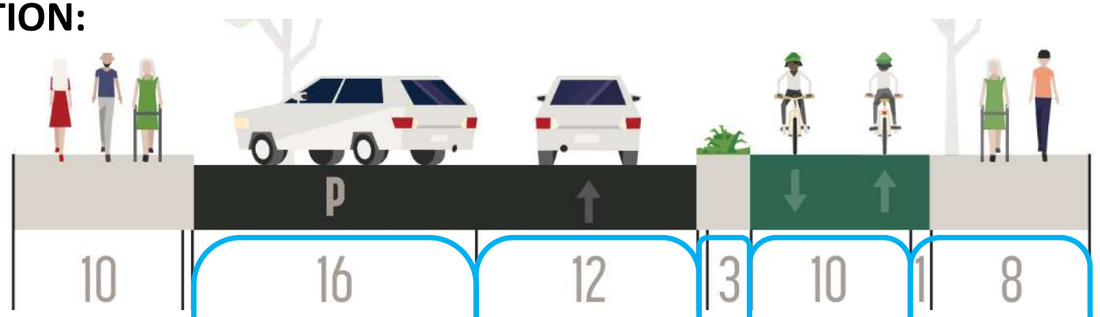
Curb separation options (CROW Design Manual)




Non curb separation

# 12th Street Cross Section Refinements

**ORIGINAL CROSS SECTION:**




City Park Lot Design Standards……17.5’……12’

*Parking Spaces* design guidance…….17.5‘……11’

London Design Manual (min*)……2’

NACTO minimum……8’

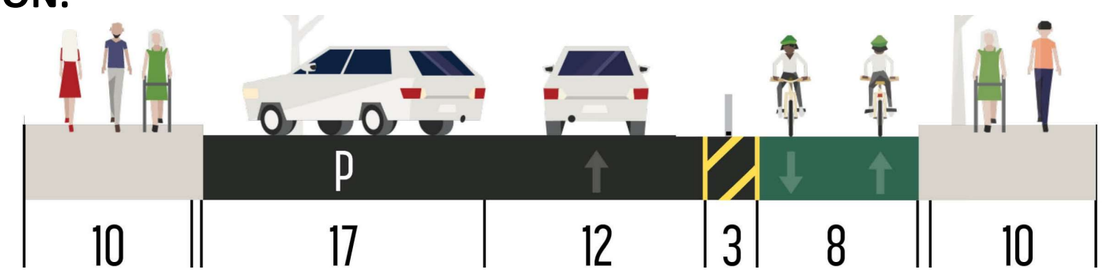
CROW (50 bikes/hour)……8’

London Design Manual (min)……8.2’

Usability, Constructability, Cost……10’

*absolute min. for safety strip between cycle track and road 0.5 meters, or 1m when adjacent to frequently accessed parked cars

**REFINED CROSS SECTION:**

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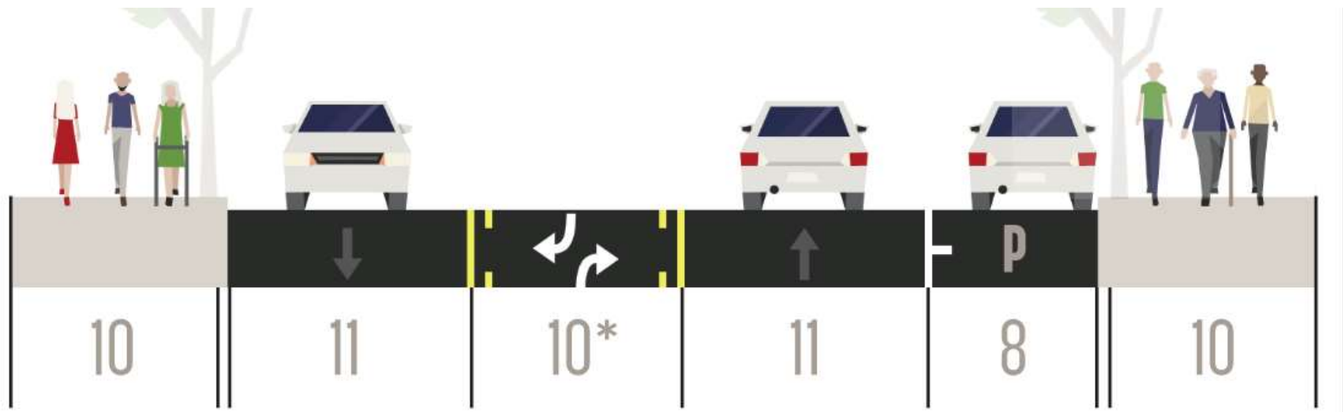
# 13th Street Cross Section Refinements

Due to existing built environment

- Space available assumed a 50’ R/W + 5’ easements on each side for a total of 60’

Considerations for street with two travel lanes and a center turn lane

- East sidewalk adjacent to the northbound travel lane
- Traffic calming strategies along 13th Street




Original typical street cross section looking south

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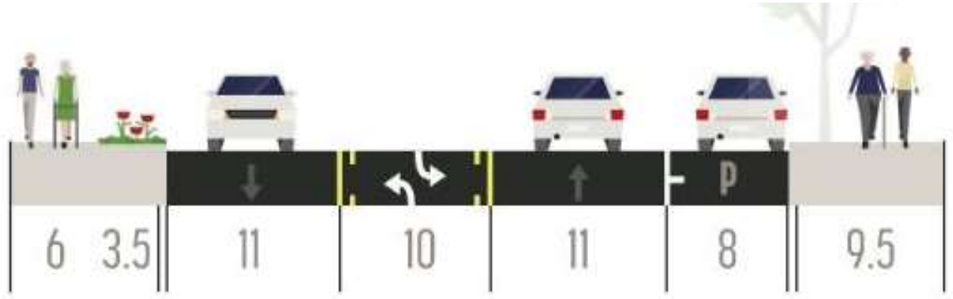
# 13th Street Cross Section Refinements

To buffer east sidewalk from adjacent travel lane

- planting and street tree limitations in 3.5’ planter (proximity to travel lane, available soil volume, maintenance considerations)


Narrow sidewalk to provide buffer from travel lane




(section looking south)

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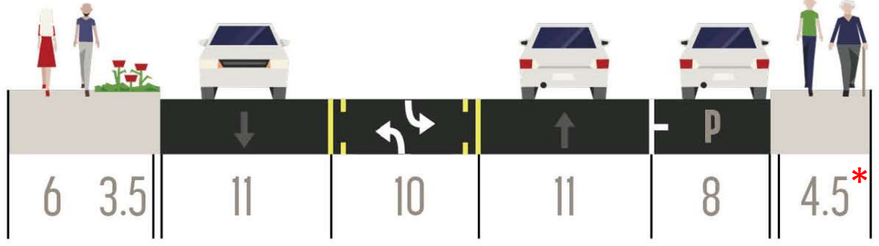
# 13th Street Cross Section Refinements

In response to available R/W and existing built environment

- Existing structures/ramps extend into the easement area reducing sidewalk width

Narrow sidewalk at existing building/ramp conflicts




*assume future redevelopment widens sidewalk

(section looking south)

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# 13th Street Traffic Calming Strategies

- Medians
- Curb extensions
- Enhanced crossings
- Potential future in-lane bus stop

**1** Median with RRFB and curb extension at enhanced East/West Crossings

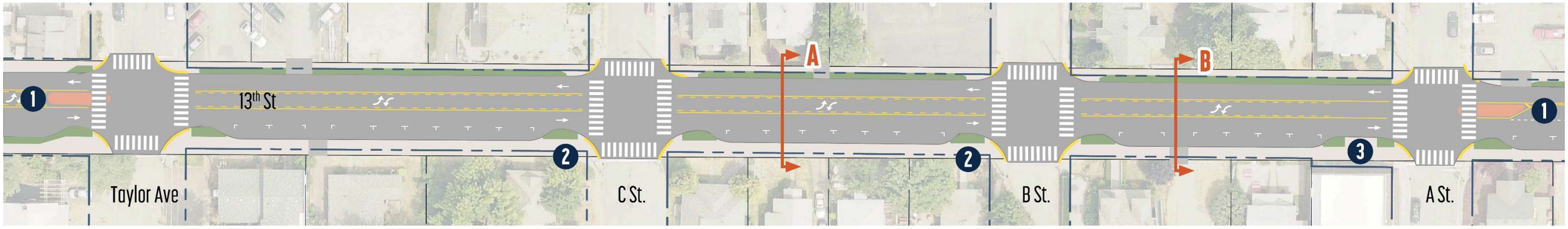
Source: City of Tualatin, OR

**2** Curb extension on west side of street

Source: Dylan Passmore

**3** Curb Extension (with potential future bus stop) and median

Source: TriMet



# Refinements to typical street cross sections

<u>Project team recommendation:</u>

- 12th and 13th Streets
  - Incorporate cross section refinements
  - City pursue opportunities to obtain easements or R/W to expand the sidewalk zone from 10’ to 12’
  - 12th Street – identify appropriate materials to provide separation between cycle track and vehicle lane that balances protection, flexibility, and emergency access
  - 13th Street – continue exploring opportunities for traffic calming measures after E/W street design and Belmont Avenue intersection design has been confirmed

<u>URAC comments</u>: support refinements and recommend narrowing parking or changing angle parking to parallel parking along 12th to provide more width for the two-way cycle track

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# 4. Bicycle connection to Pacific Ave

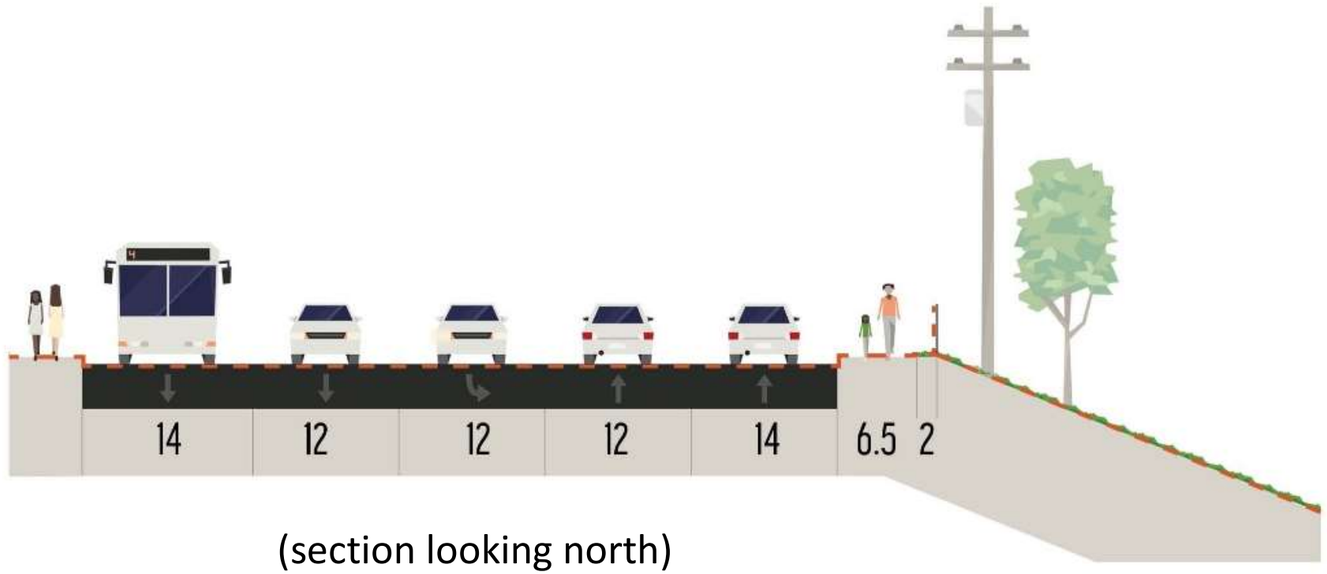
develop potential cross sections to provide a bicycle connection to Pacific Ave that aligns with the preferred design concept

# Bicycle Connection to Pacific Ave

Existing ODOT R/W Street Section:

14’ outside curb lanes

12’ inside curb lanes




(section looking north)

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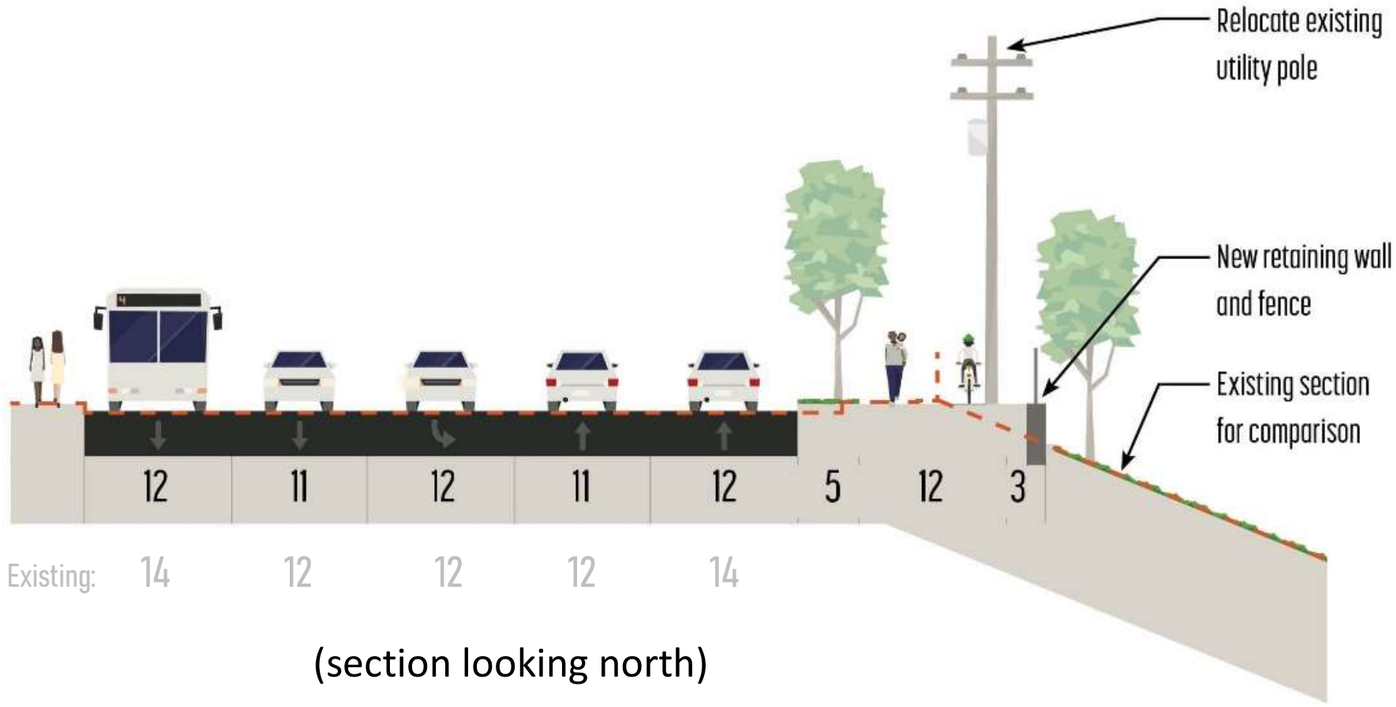
# Bicycle Connection to Pacific Ave

Option within ODOT R/W:

- Shared use path along the roadway
- Narrow existing travel lanes
- Widen sidewalk
- Construct retaining wall, relocate fence and utility poles
- Limitation adjacent to gas station/Dutch Bros parcel
- Connect to two-way cycle track south of Belmont




(section looking north)

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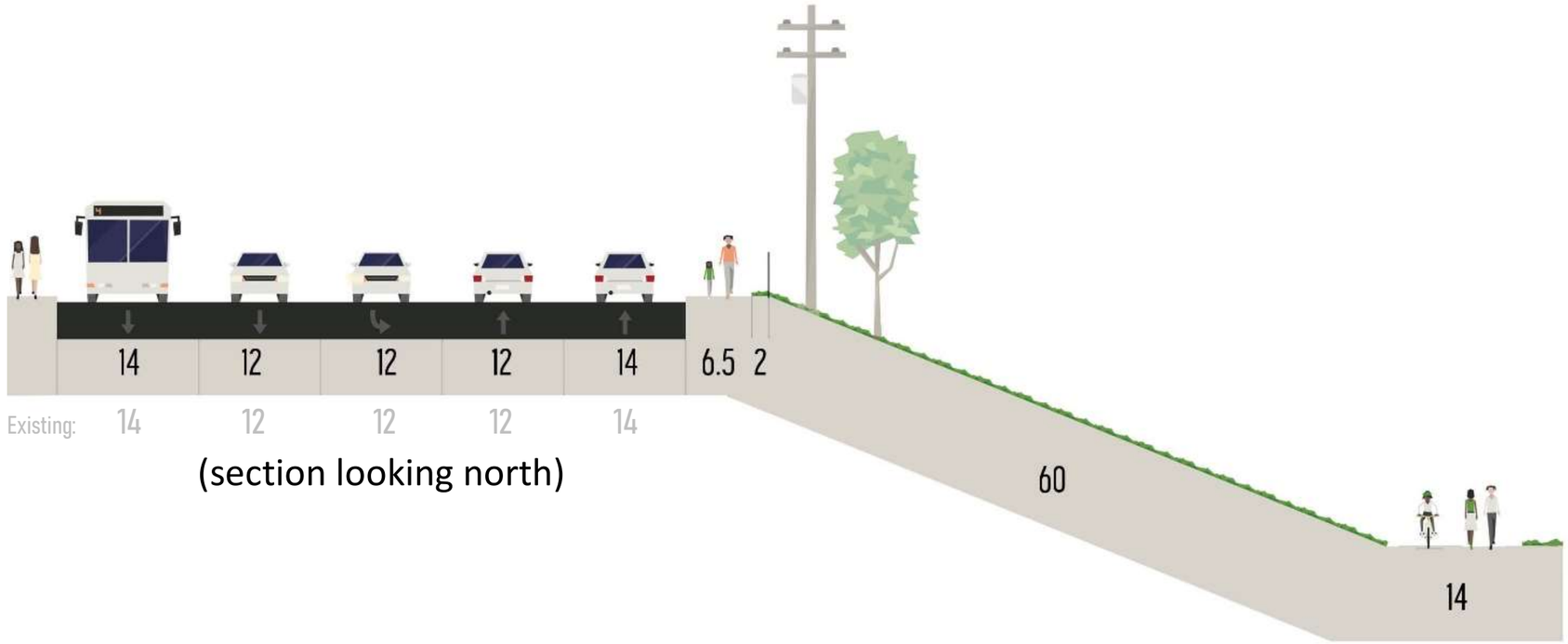
# Bicycle Connection to Pacific Ave

Option away from roadway:

- Route people to Indian Creek Trail
- Requires people biking to drop down to creek (~30’ in elevation change)
- Limitation adjacent to gas station/Dutch Bros parcel
- Connect to two-way cycle track south of Belmont




(section looking north)

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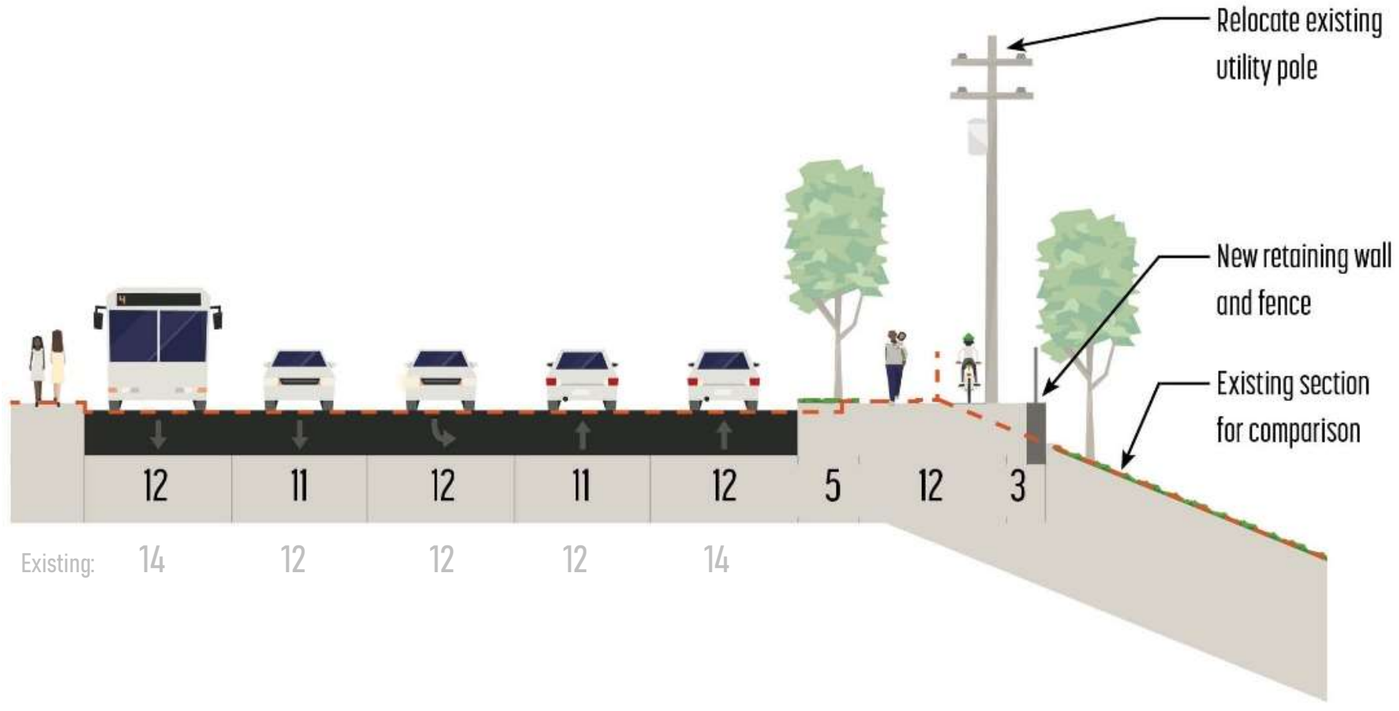
# Bicycle Connection to Pacific Ave

<u>Project team recommendation</u>:

- Shared use path along roadway
- More direct access for people biking

<u>URAC recommendation</u>:

- support a bicycle connection alongside the roadway

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# 5. Summary of potential parking impacts

potential impact to parking supply in the Heights based on current recommendations for streets and intersection improvements

# Summary of potential parking impacts

What we learned from the 2021 Heights parking study:

- 2021 peak parking demand as a whole is well below the supply of parking.
  - ~51% occupied in total, however, parking is more utilized in some areas.
- Identified a 2040 peak summertime demand (weekdays during the lunch period):
  - 100% of buildings occupied,
  - future growth, and
  - the ability to use only 85% of provided parking.
- The combination of future transit stops and a low-stress walking and biking environment could encourage a mode shift away from automobiles.
  - A 5% reduction in automobile trips equates to about 33 parking stalls.
- Managing the parking supply, as done in downtown, could better balance parking supply and demand.

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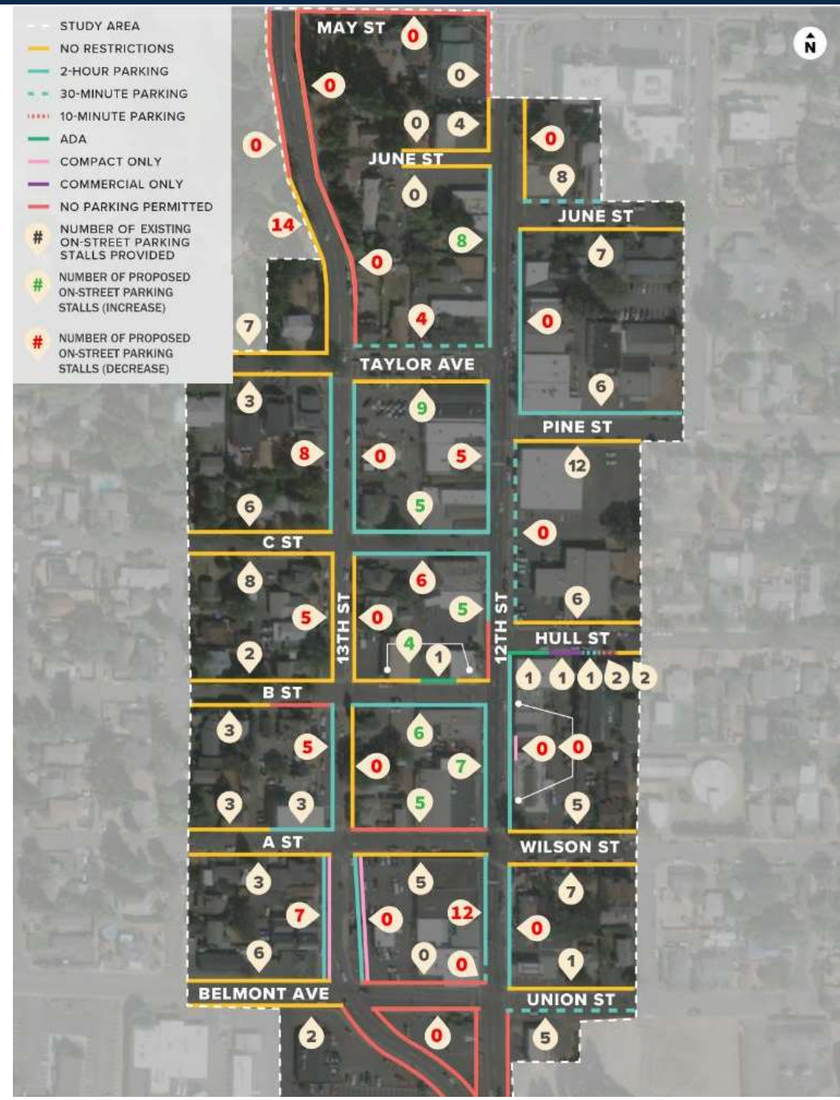
# Summary of potential parking impacts

## Projected parking supply within 5% of the estimated 2040 peak summertime parking demand

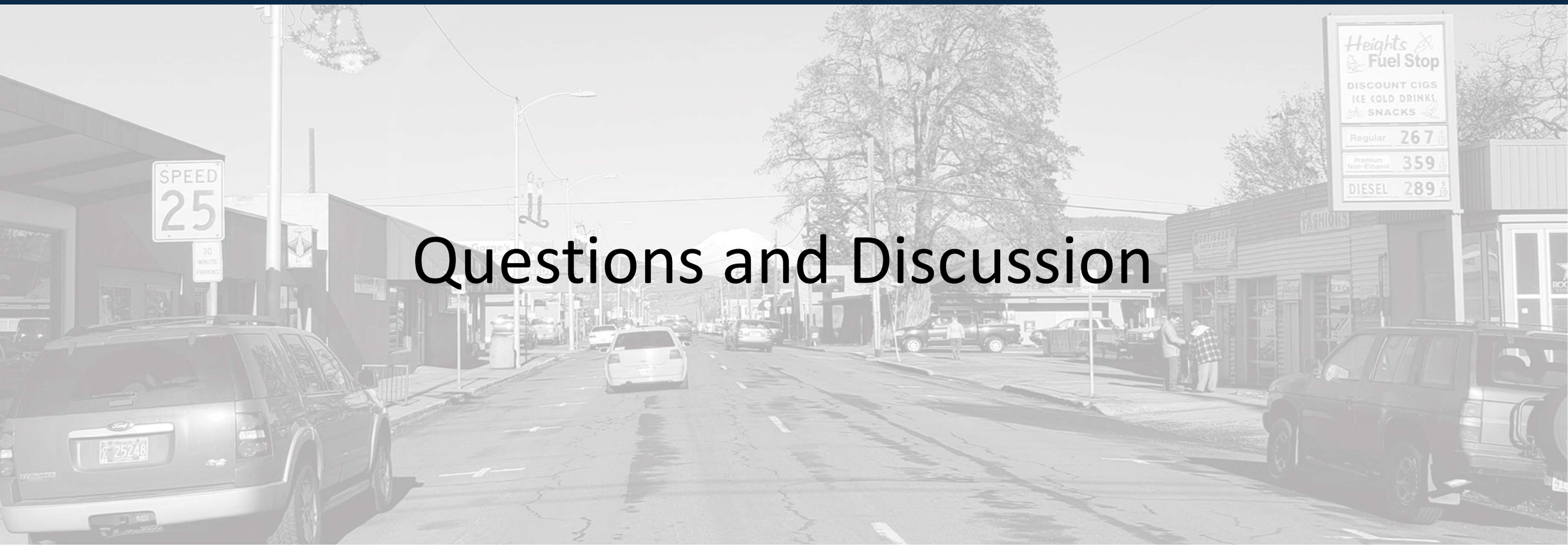
| | Approx. On-street Parking along 12th and 13th Streets | Approx. On-street District Parking on all E/W streets (parking within one block of 12th and 13th Streets) | Approx. Off-Street Parking (per Sept. 2021 parking study) | Total Parking (on- and off-street) |
|---|---|---|---|---|
| Current (Existing) | 156 | 148 | 410 | 714 |
| 2011 TSP Proposed | 70 | 148 | 410 | 628 |
| Hybrid Design Concept | 80 | 155 | 399[A, B] | 634 |
| **Estimated 2040 Peak Summertime Parking Demand** (from 2021 Parking Study) | | | | 657 |

A - This number reflects the loss of 11 parking stalls that could be removed with the acquisition of the private parcel located between Belmont Avenue/12th Street/13th Street.

B - This number does not include impacts to off-street parking at Jackson Park and the hospital as those parking areas were not included in parking study completed during Phase 2.



# Phase 3 - Additional Design Studies




## Questions and Discussion

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# THE HEIGHTS STREETSCAPE PLAN

## PHASE 3 – ADDITIONAL DESIGN STUDIES

URBAN RENEWAL AGENCY BOARD
URBAN RENEWAL ADVISORY COMMITTEE

APRIL, 2023