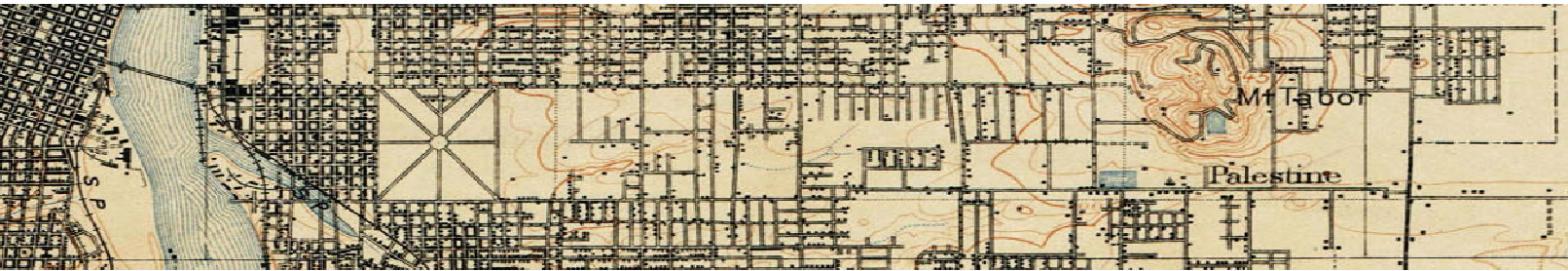


DIVISION

TRANSIT PROJECT

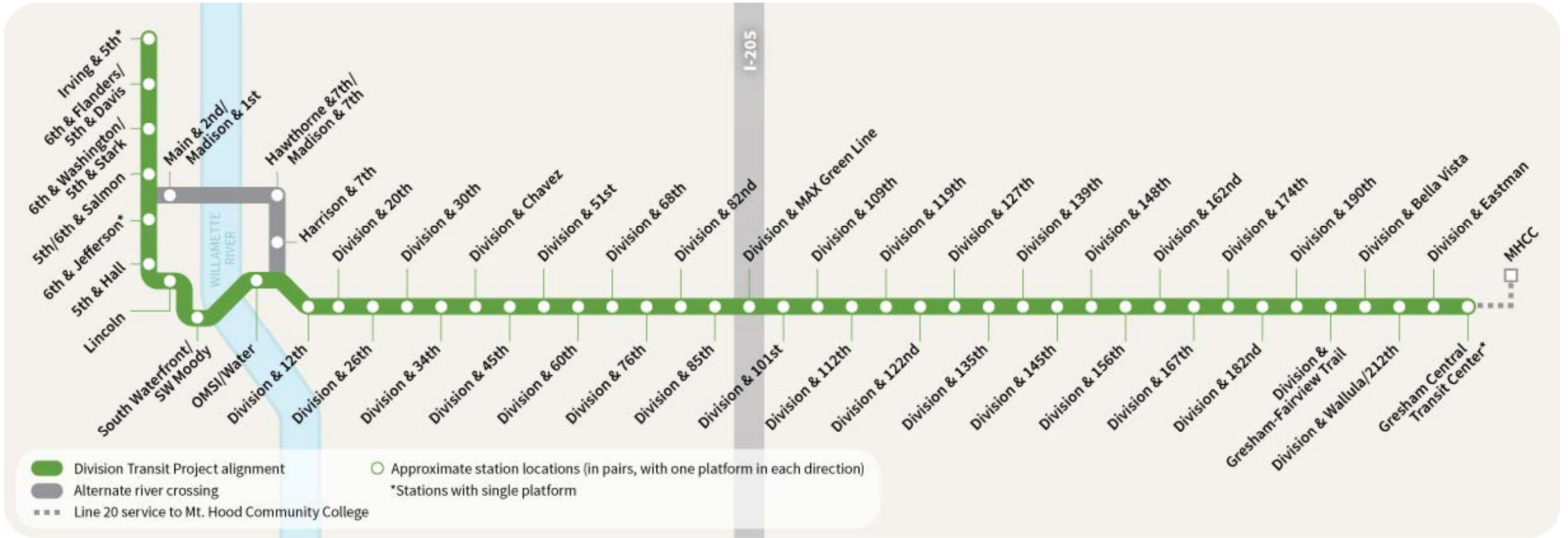


COMMUNITY ADVISORY COMMITTEE

APRIL 20, 2017

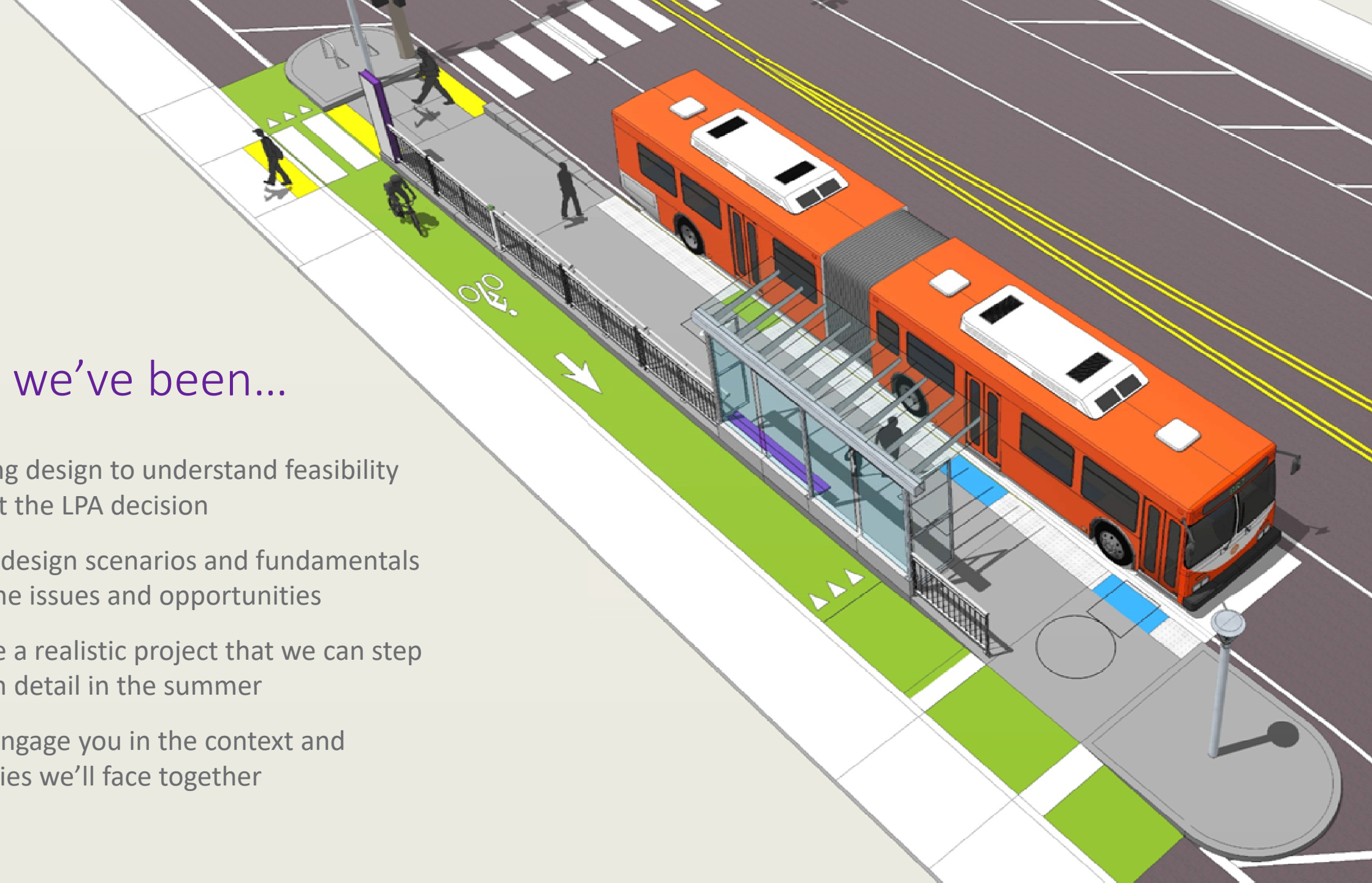
CAC: Project Design Primer

20 april 17



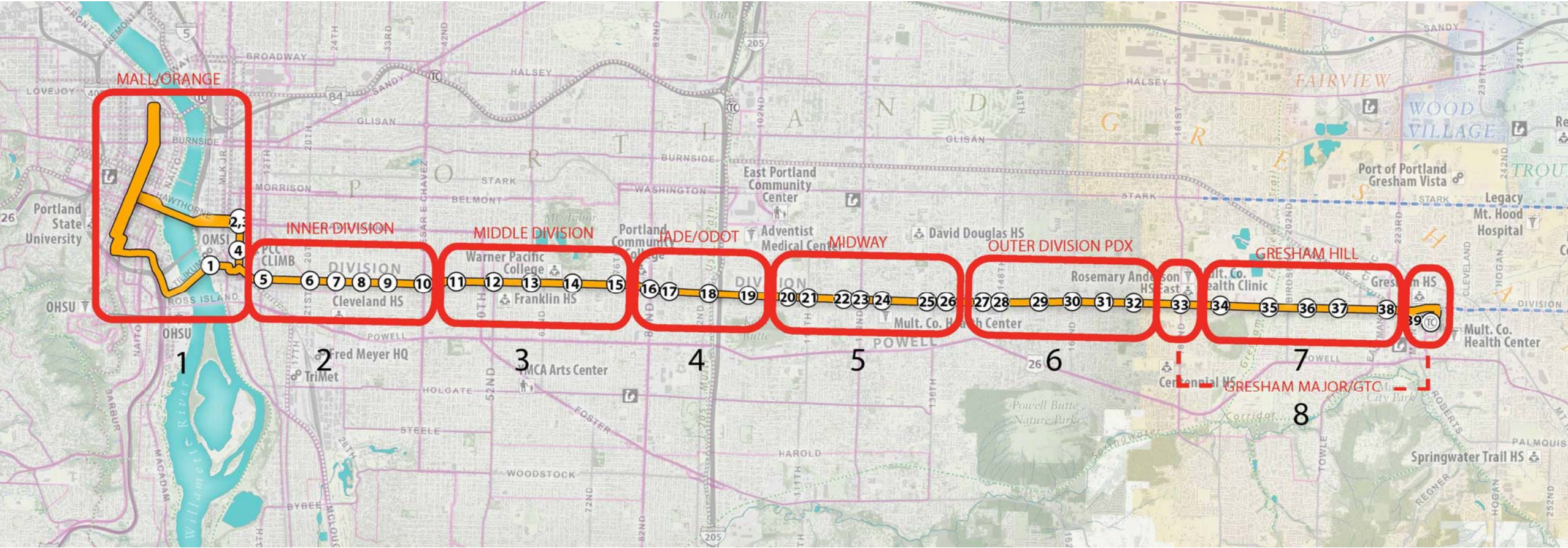
Where we've been...

- Conducting design to understand feasibility to support the LPA decision
- Exploring design scenarios and fundamentals to learn the issues and opportunities
- We'll have a realistic project that we can step through in detail in the summer
- Want to engage you in the context and complexities we'll face together



take something big and break it down...

design team working sub-segments

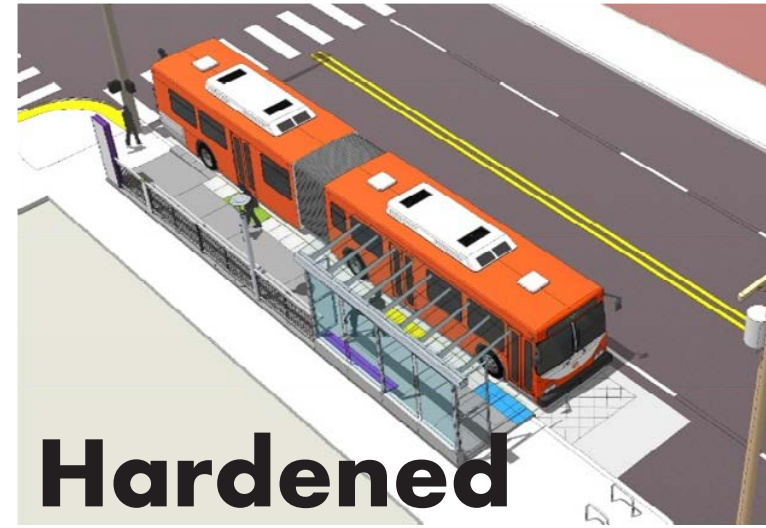


take something big and break it down...

high-level contextual classification



the same is true for stations...a simplifying typology emerges



So, why a design primer?

- Overview of the context and the complexities
- Uncover some of the difficult balancing acts
 - Station placement and impacts
 - Multimodal accommodation and access
 - Range of costly but non-critical items
- Or, said another way...
 - Safety
 - Accessibility
 - Equity
- Share information
- Answer your questions






Building Blocks and Basics

- Buses hold more people
- **Less time spent stopped**
- Move faster through traffic

- Stop less often
 - 1/6 mile or tighter
 - 1/3 mile average
- Stop for shorter amount of time
 - Level boarding
 - Less kneeling
 - All door boarding
 - Faster for all
- Get to and from the stop faster
 - Bus remains in lane
 - No merging
 - Stations at far side of traffic light



Building Blocks and Basics

- Buses hold more people
- Less time spent stopped
- **Move faster through traffic**

- Traffic Signal Priority
 - Corridor Wide
 - Key intersections
- Business + Access to Transit Lanes
 - Major intersection approaches
 - Far side and near side stops
- Queue Jumps
- Utilize shared transitway

Design Assumptions for BRT station infrastructure:

- Hop FastPass will be available at all 3 doors of the BRT vehicle
- Two entries (at least 1 accessible) to be provided to each platform
- Allow for ADA loading with ramp and cash fare at Door 1
- Focus ADA loading at Door 2 (with bridge plate) for ALL stations
 - Will test level of impact on inner Division, orange line and the Mall
- Variation in ADA boarding/alighting to be tested/avoided
 - cash fare payment from door 2 loading to be explored
- No fiberoptic connection will be provided
 - therefore no CCTV/financial transactions



12 Platforms

- Outer Division (area of 5 lane section)
- Arterial to Arterial intersections
- N/S Transfer locations now or in future



20 Platforms

- Primarily Outer Division away from intersections (includes new or in proximity to signalized crossing)
- Some variation on middle Division and CE to push bikes behind

Design Assumptions for BRT station infrastructure:

- Station infrastructure will be designed to serve the 60' fleet ONLY
 - will not necessarily serve 40' fleet with door 1 ramp deploy and bikes on front
- Platform width shall be 10' min and 12' preferred
 - 600sf average platform area adequate to serve passenger load with headways projected
- Platform height shall vary from 6" at Door 1 to ~11" at Door 2 and 3
 - Flexibility preserved into Final Engineering for fleet procurement
- Bicycles shall be on-board and will enter/exit at door 3
 - cash fare will require internal circulation



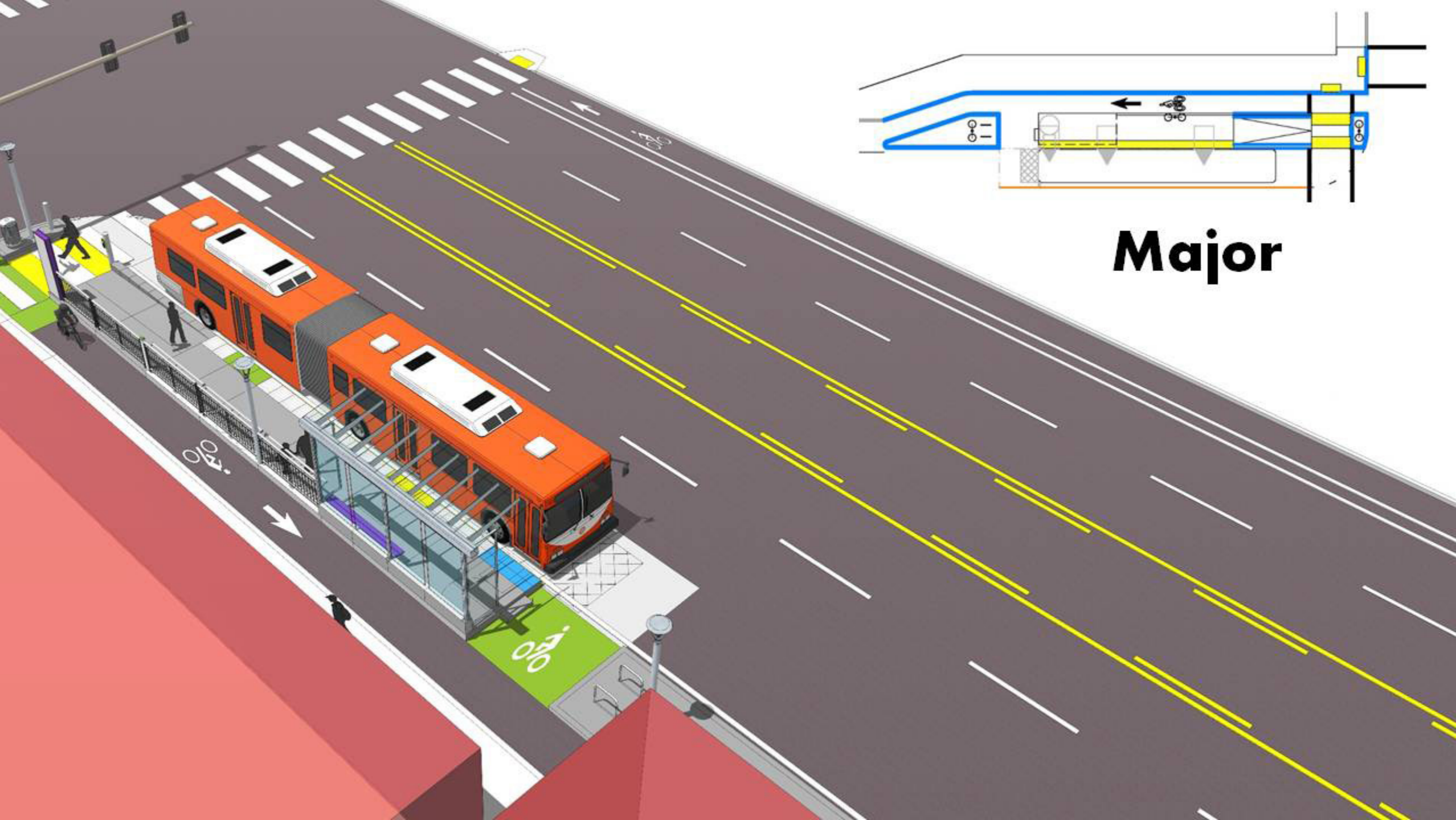
15 Platforms

- Used where there is no bike lane or where bus can "take" bike lane
- Used where ROW and remaining sidewalk are wide enough to face of building

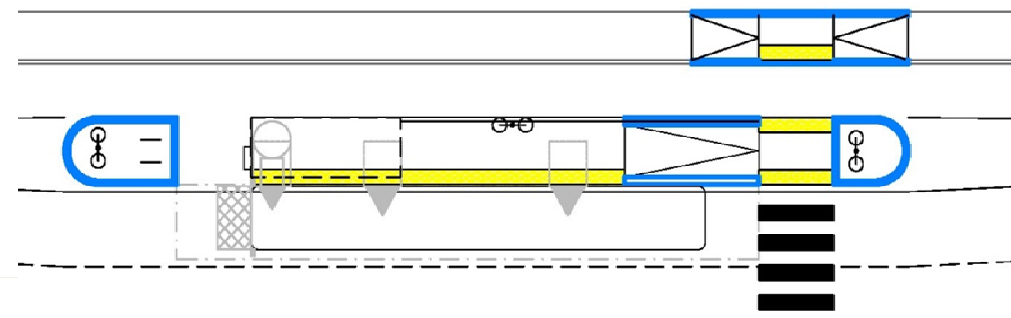
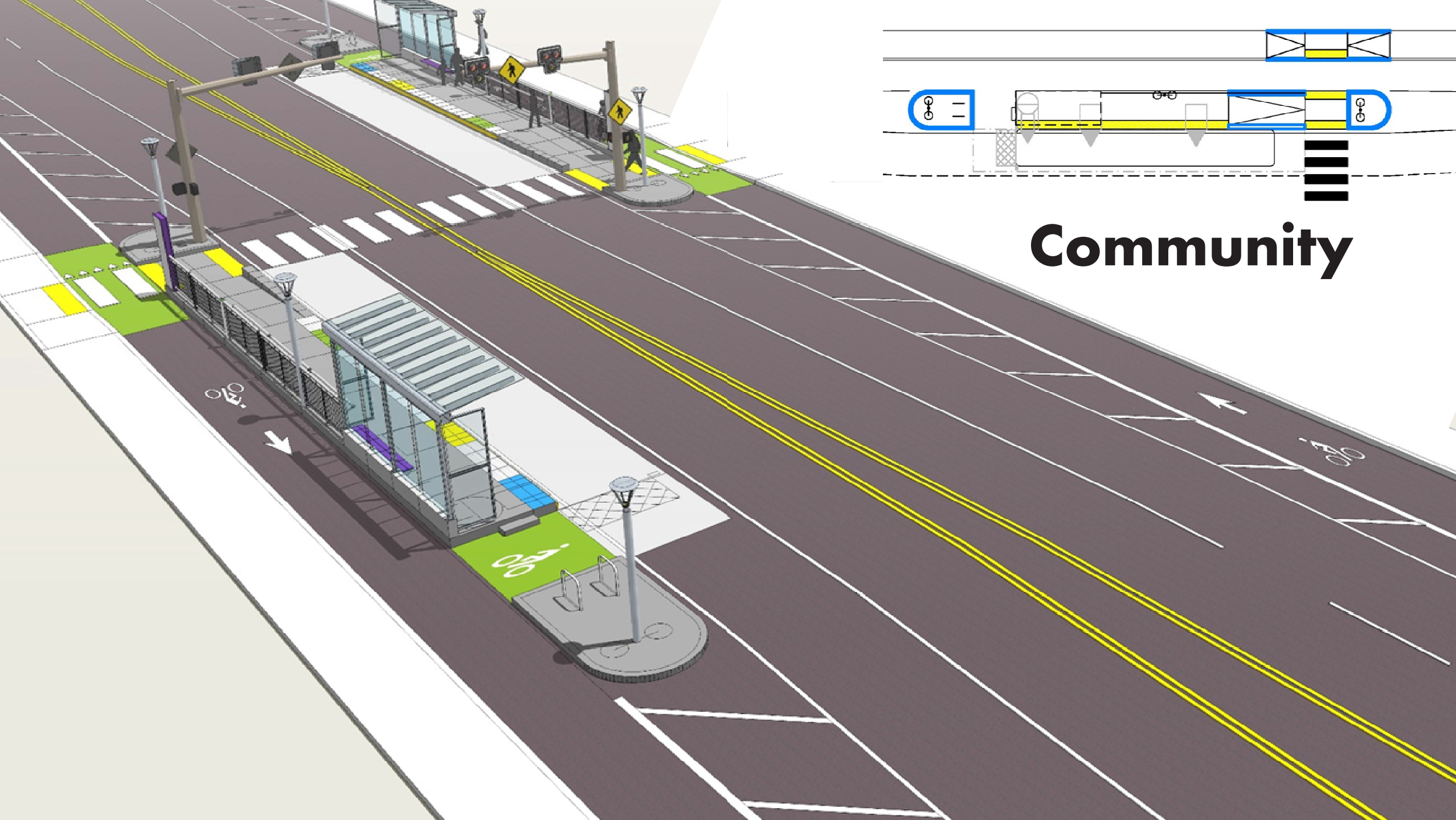


33 Platforms

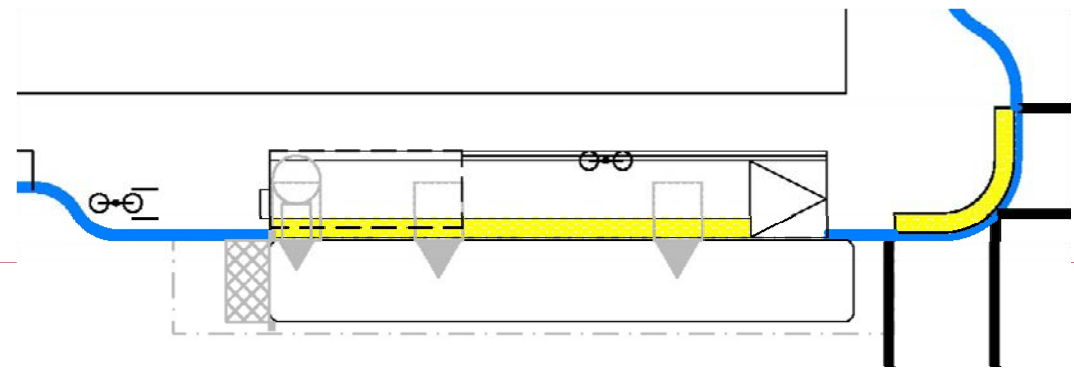
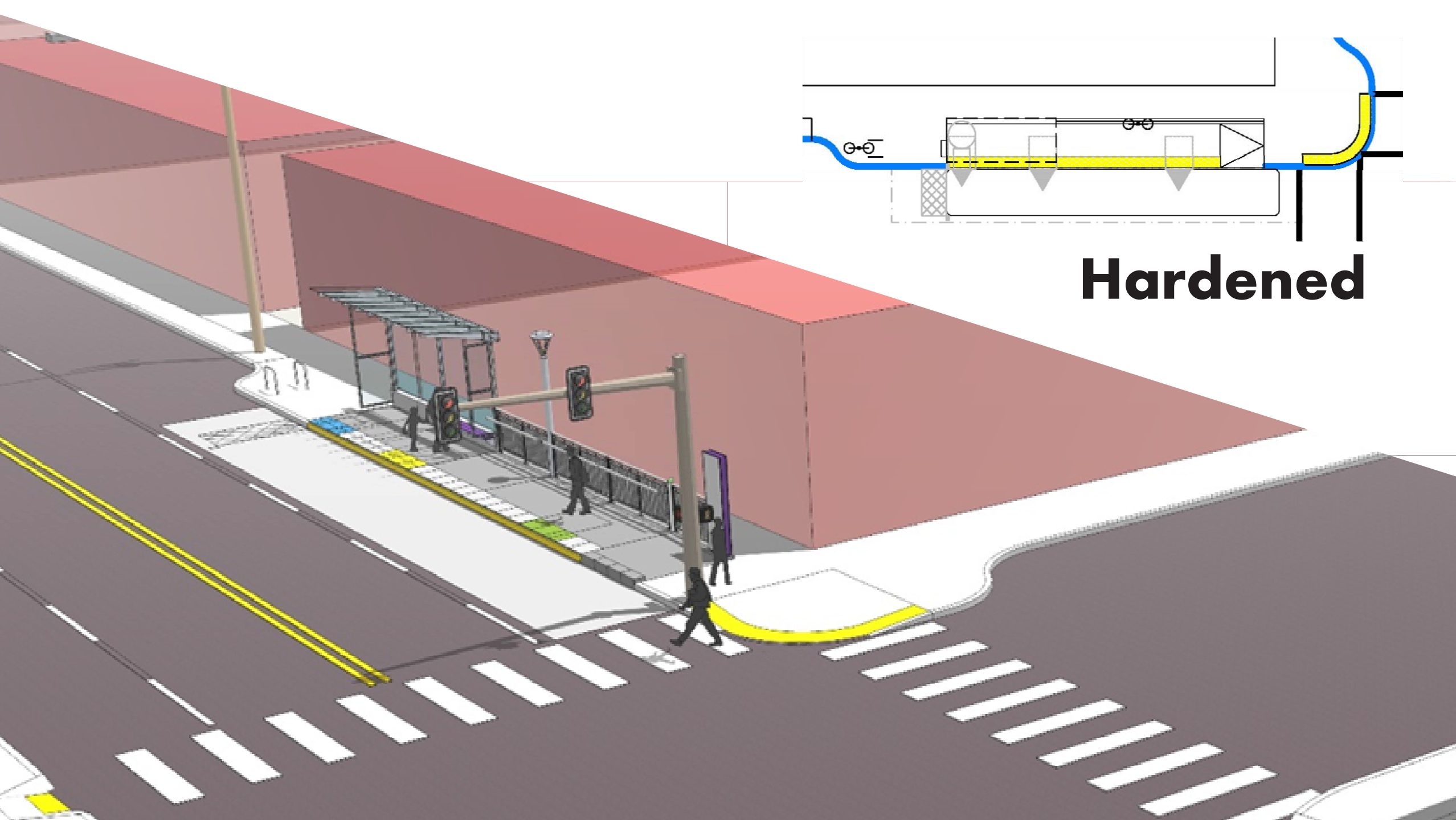
- Primarily Inner Division Streetscape area and Downtown Portland too)
- May have to investigate options with reversed shelter orientation due to built constraints



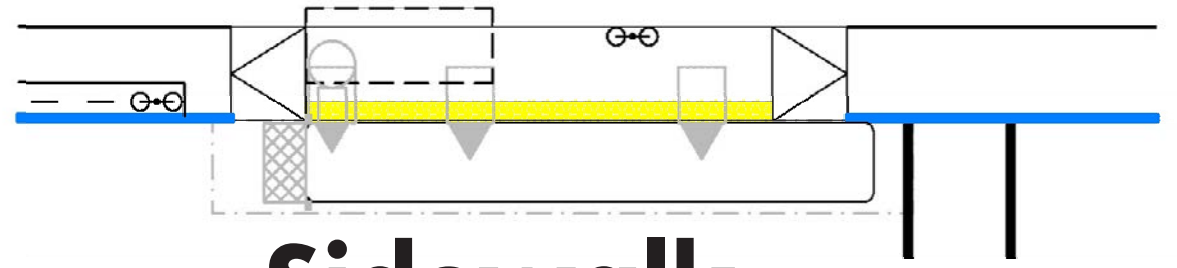
Major



Community



Hardened

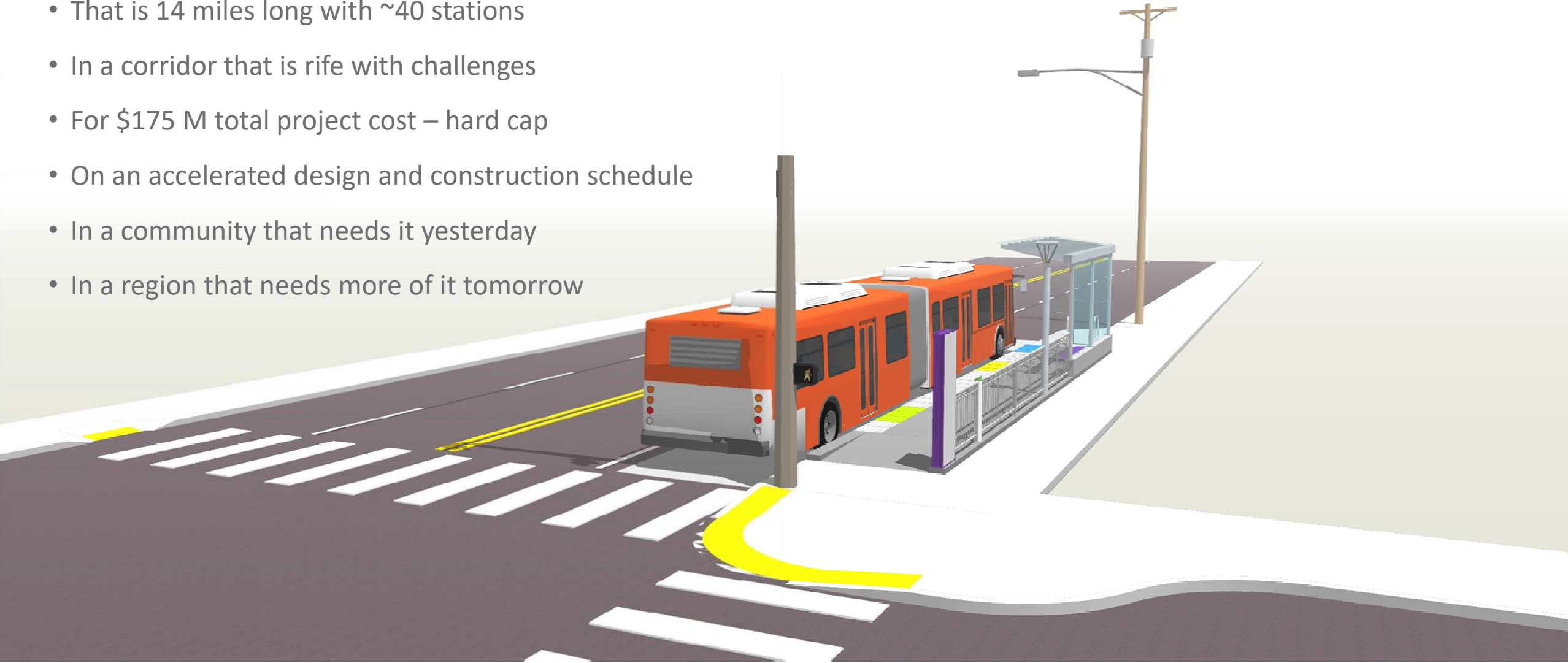


Sidewalk



Our Mandate

- Deliver the Agency/Partner/Community's first BRT project
- That is 14 miles long with ~40 stations
- In a corridor that is rife with challenges
- For \$175 M total project cost – hard cap
- On an accelerated design and construction schedule
- In a community that needs it yesterday
- In a region that needs more of it tomorrow



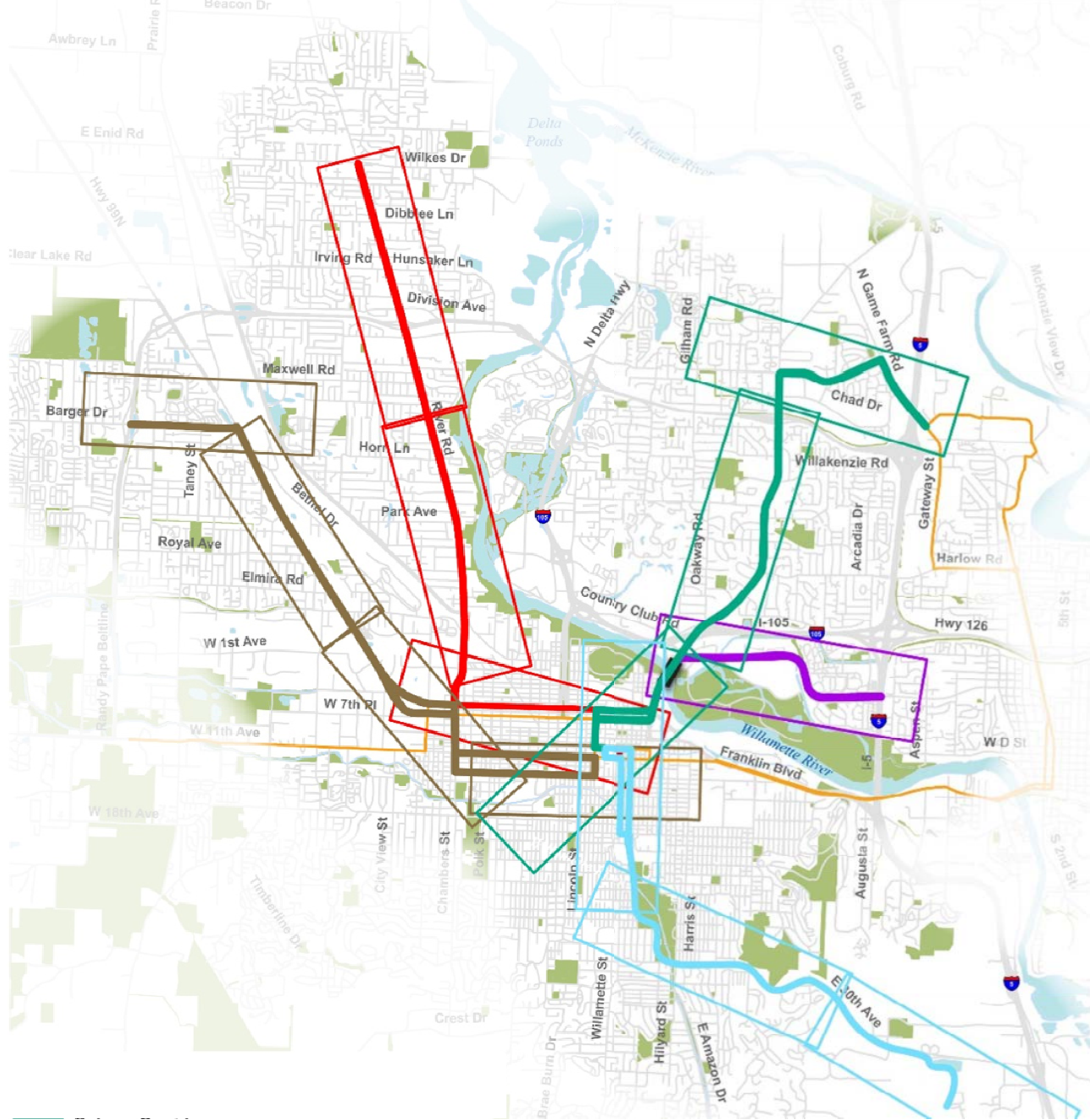
CONTEXT

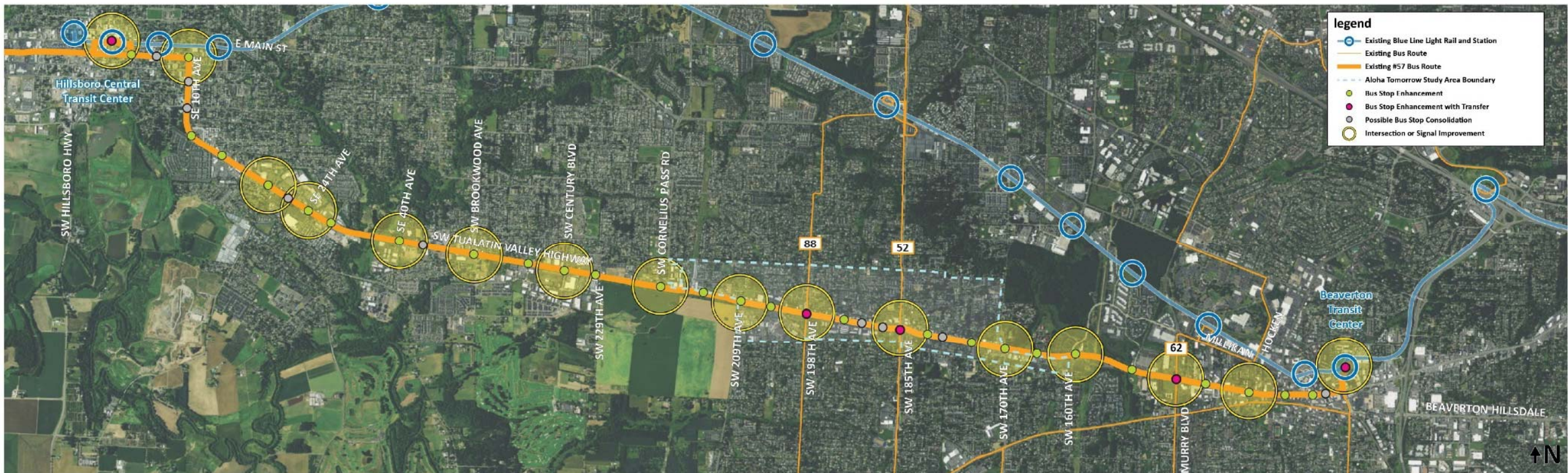
TRANSFORMATION

BALANCE









INCREMENTALISM





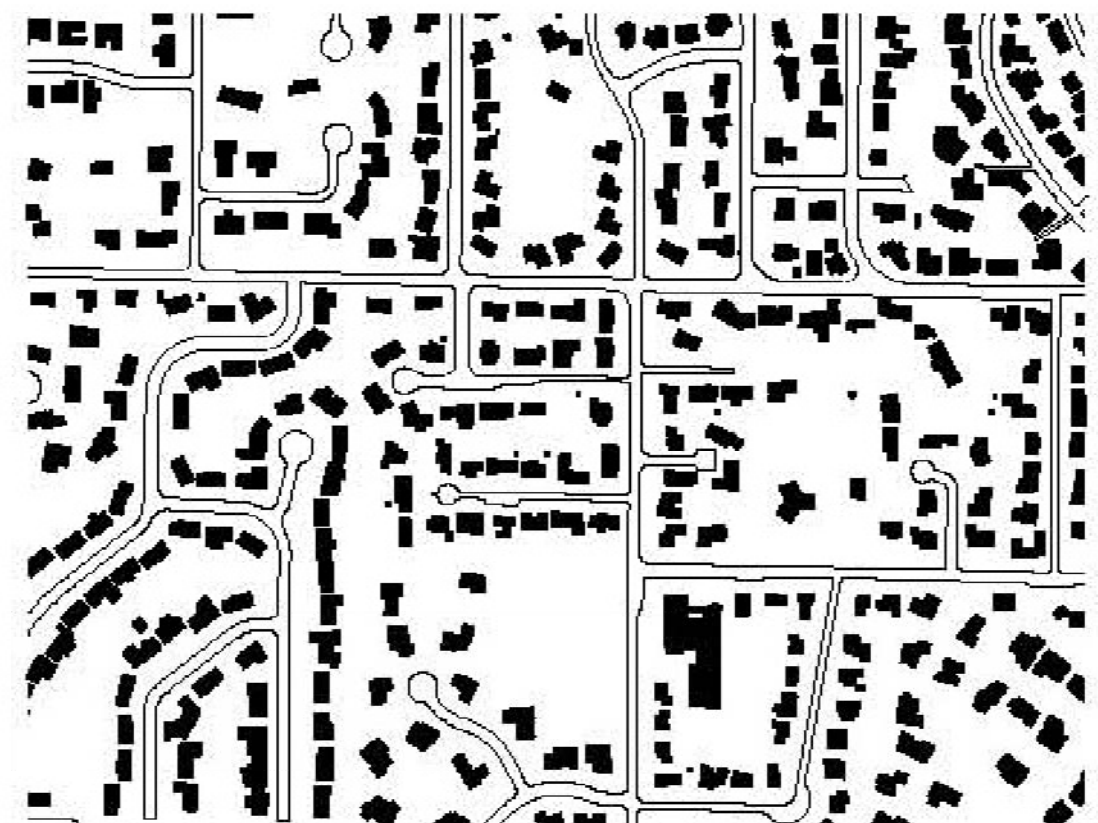
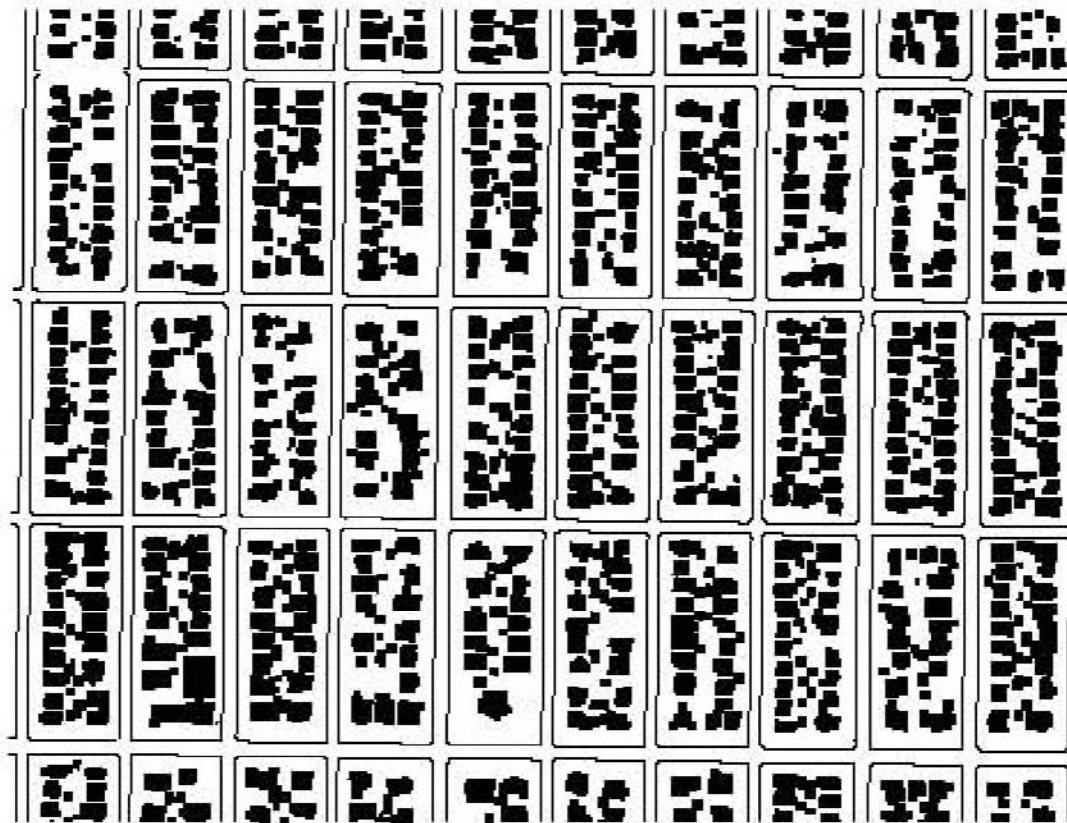


legend

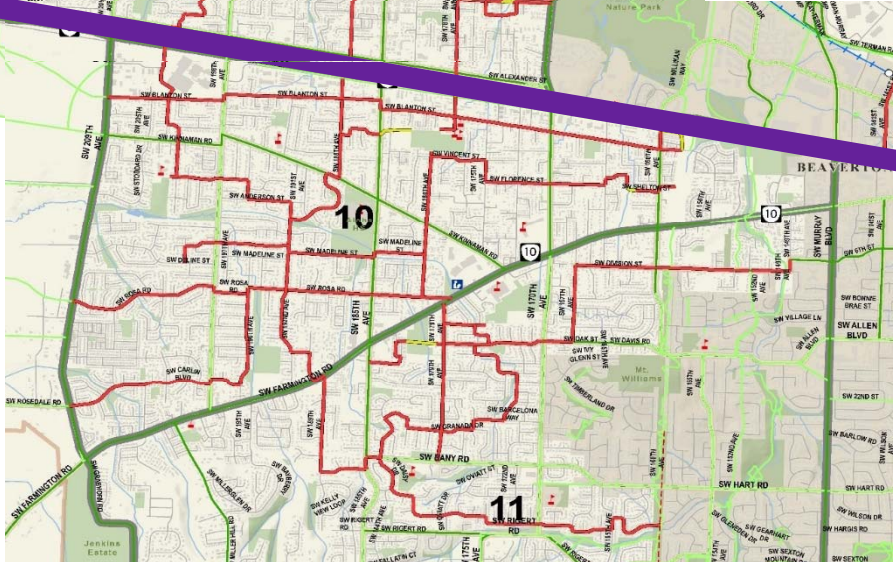
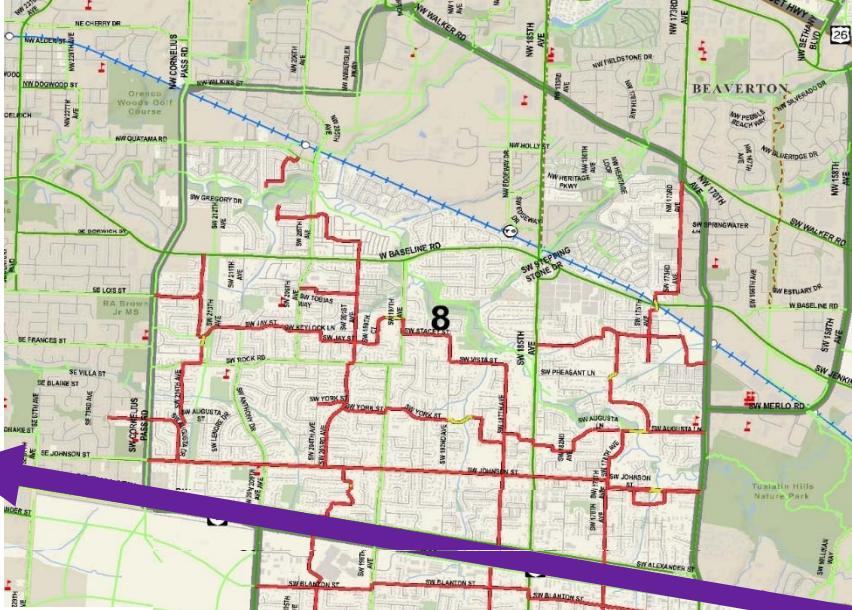
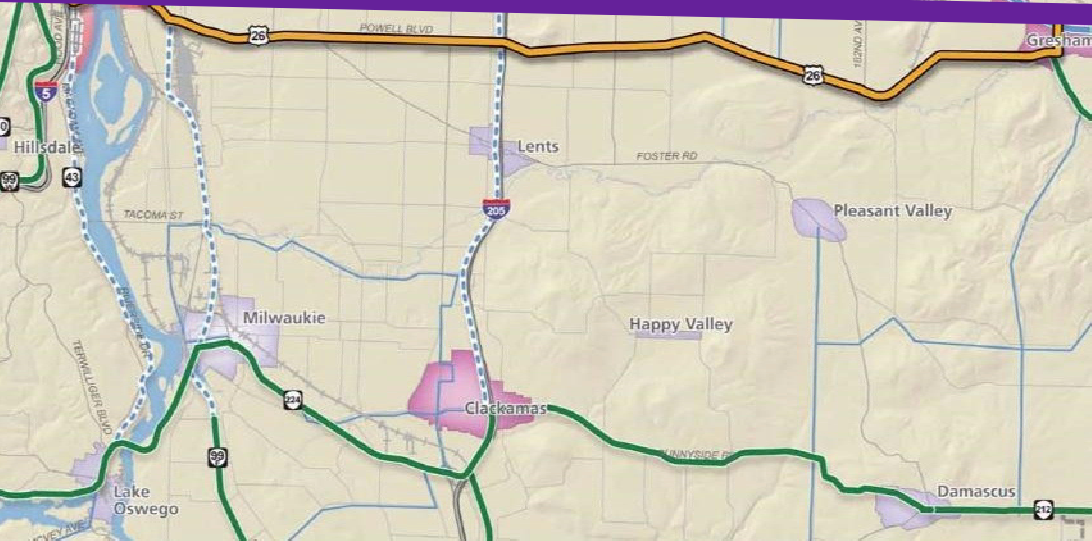
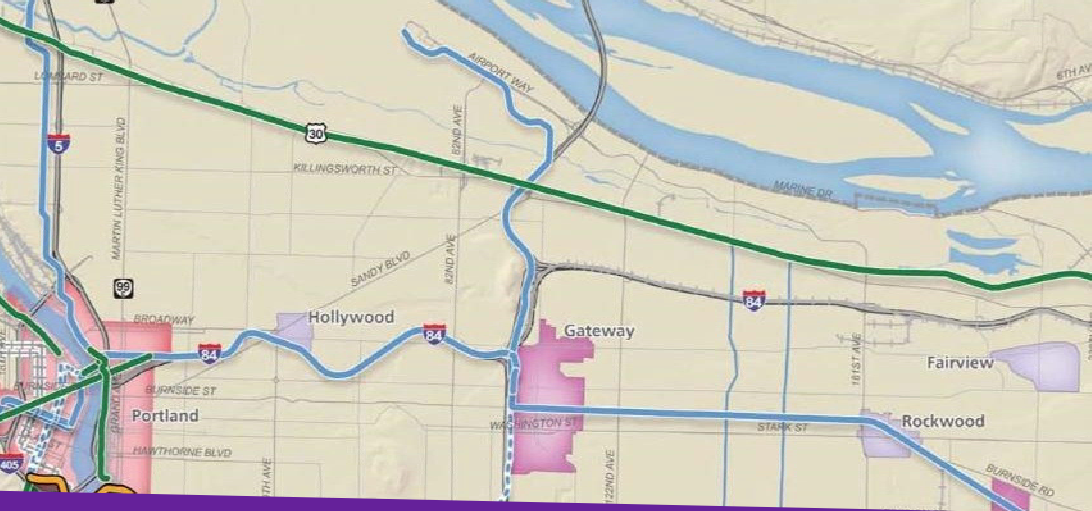
-  Existing Blue Line Light Rail and Station
-  Existing Bus Route
-  Existing #57 Bus Route
-  Aloha Tomorrow Study Area Boundary
-  Bus Stop Enhancement
-  Bus Stop Enhancement with Transfer
-  Possible Bus Stop Consolidation
-  Intersection or Signal Improvement

CONTEXT...and its consequences

fragmented and discontinuous transportation system



main arterials are the ONLY elements of continuity



so, everyone for every purpose relies on them





Freight and business-supportive functions



Neighborhood circulation and access



Transit and pedestrian and cycling movements

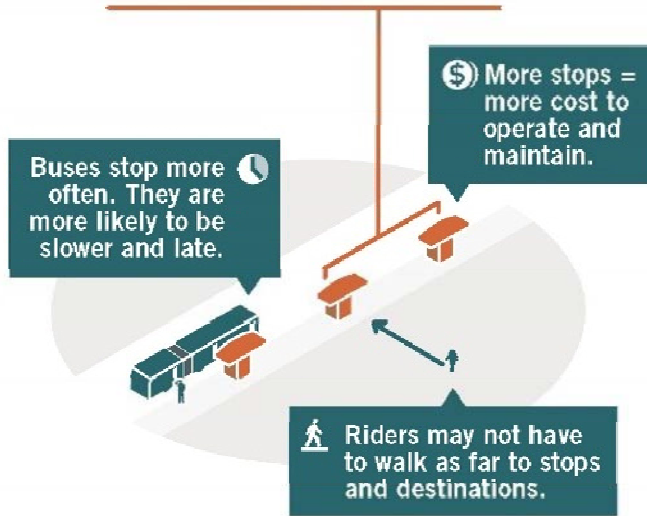
because often, this is the only direct way to get around

workhorse corridors in the old paradigm and new

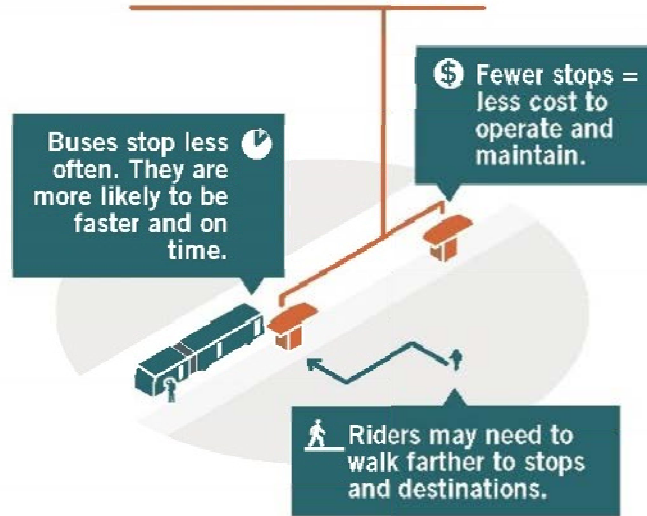


with significant and diverse transit usage patterns

WHEN STOPS ARE CLOSER TOGETHER

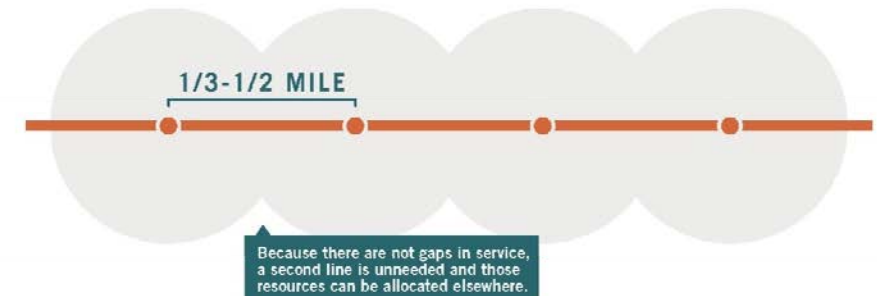
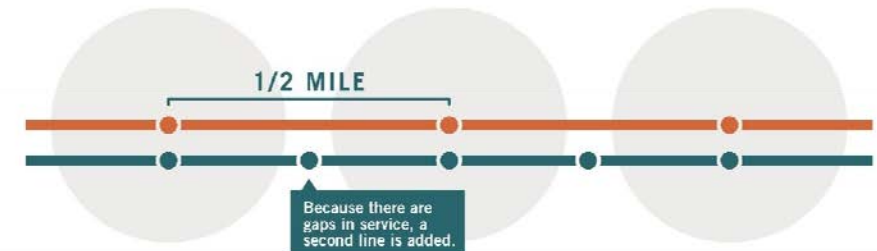
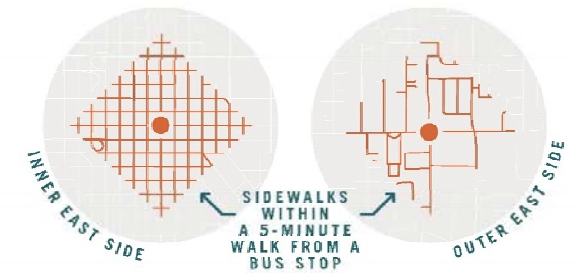


WHEN STOPS ARE FARTHER APART

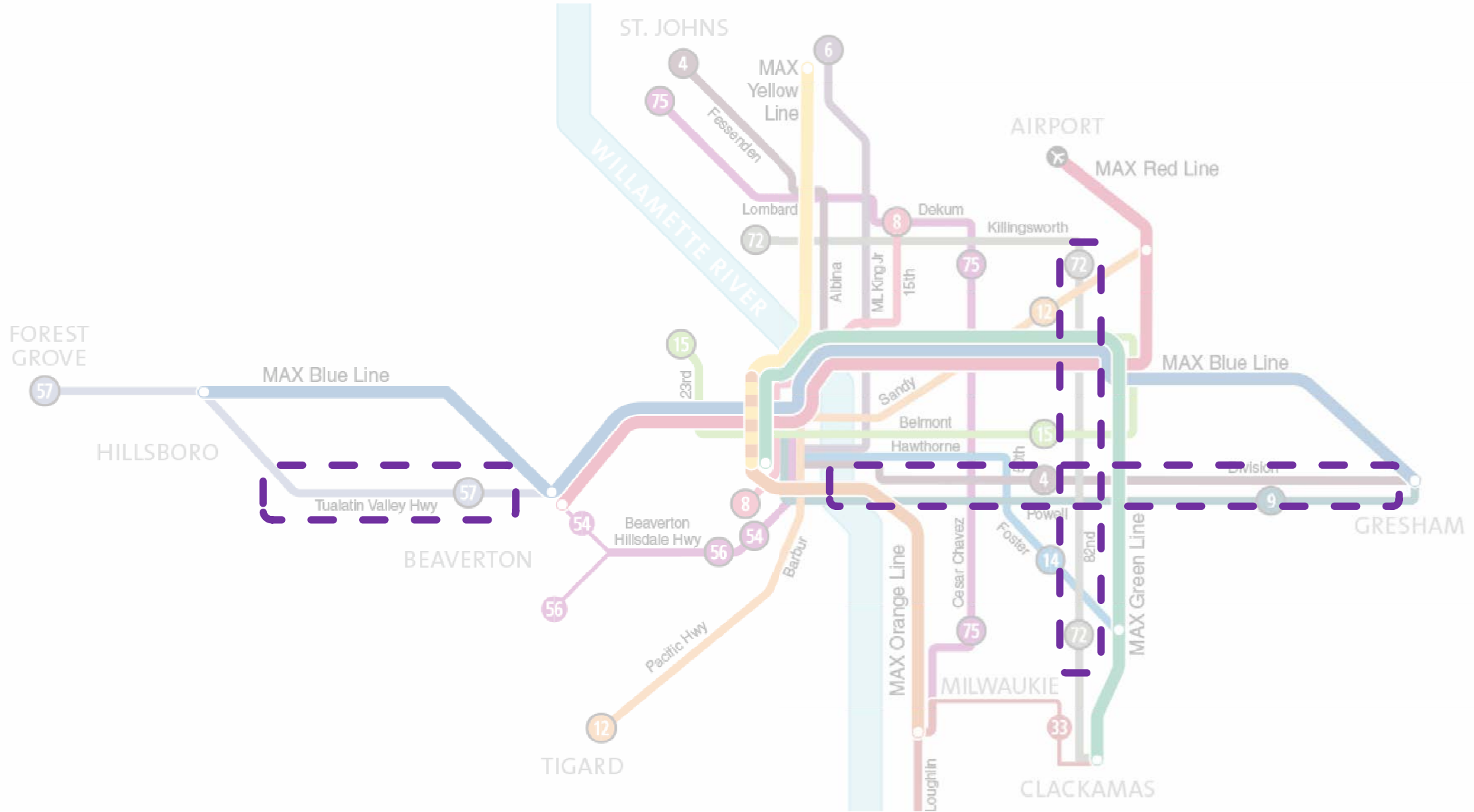


WALKABILITY

Present finibus risus arcu, sed blandit odio lacrima ul. Nulla pulvinar nisi ipsum, sed laoreet nisi auctor eu. In laoreet purus nec erat hendrerit ullamcorper. Nunc in arcu at arcu consequat volutpat. Aliquam rhoncus molestie metus eu euismod.



building the ladder of service/modal hierarchy



land use characteristics are just as varied...

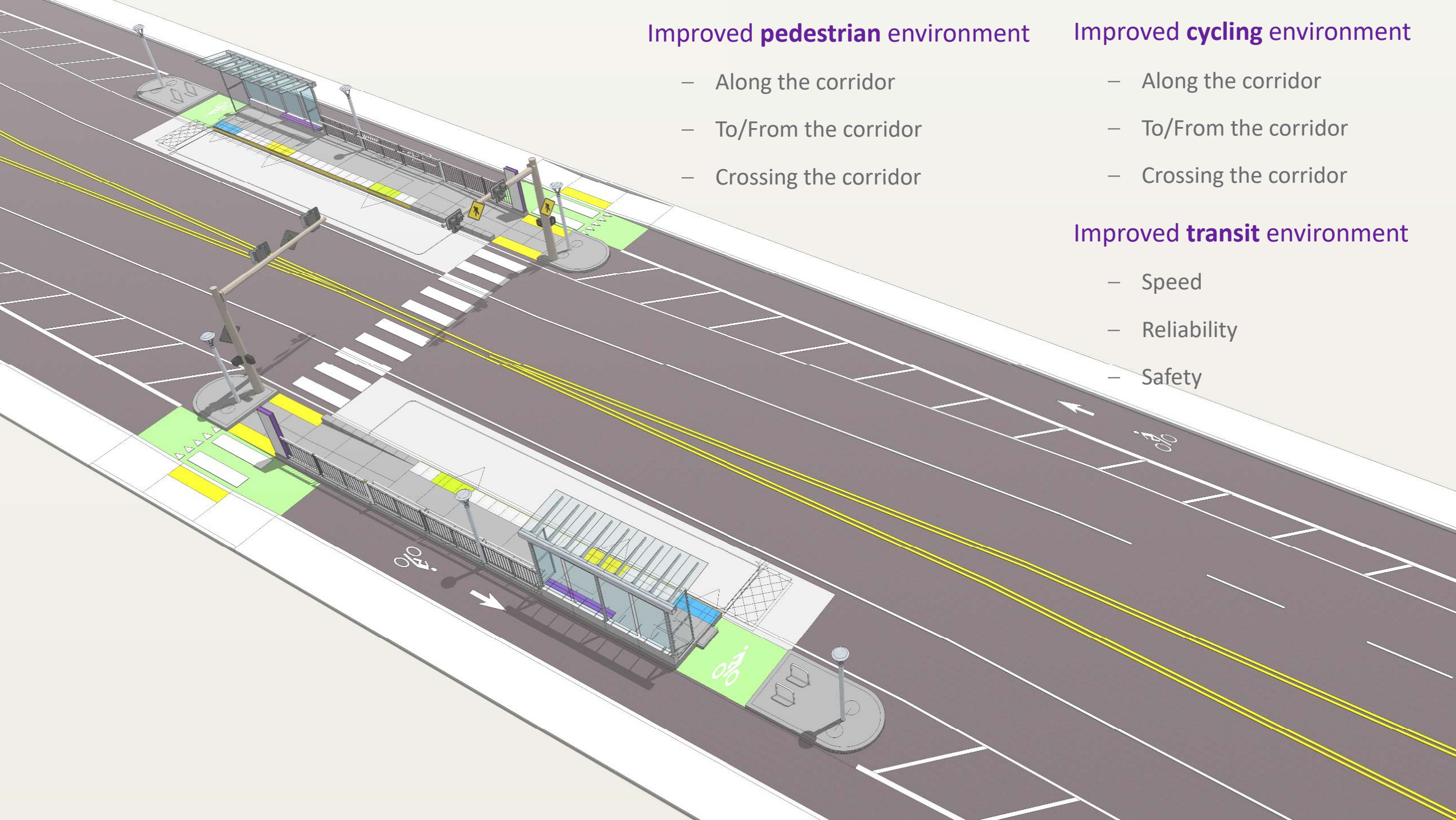


- Former county or un-incorporated land with **little regulation and urban services**
- Variety of uses and frontage types from a variety of development eras – **no consistent form**
- Diverse buildings, **diverse uses**, diverse communities
- Single family rural residential, carpark multifamily, business, auto-centric, mobile homes, flag lot development, new housing types
- Code adoptions and ideas call for transformation but currently **lack the vision for the “whole” place**

...and along comes transit and TRANSFORMATION

everybody wants everything for everyone at all times, now...





Improved **pedestrian** environment

- Along the corridor
- To/From the corridor
- Crossing the corridor

Improved **cycling** environment

- Along the corridor
- To/From the corridor
- Crossing the corridor

Improved **transit** environment

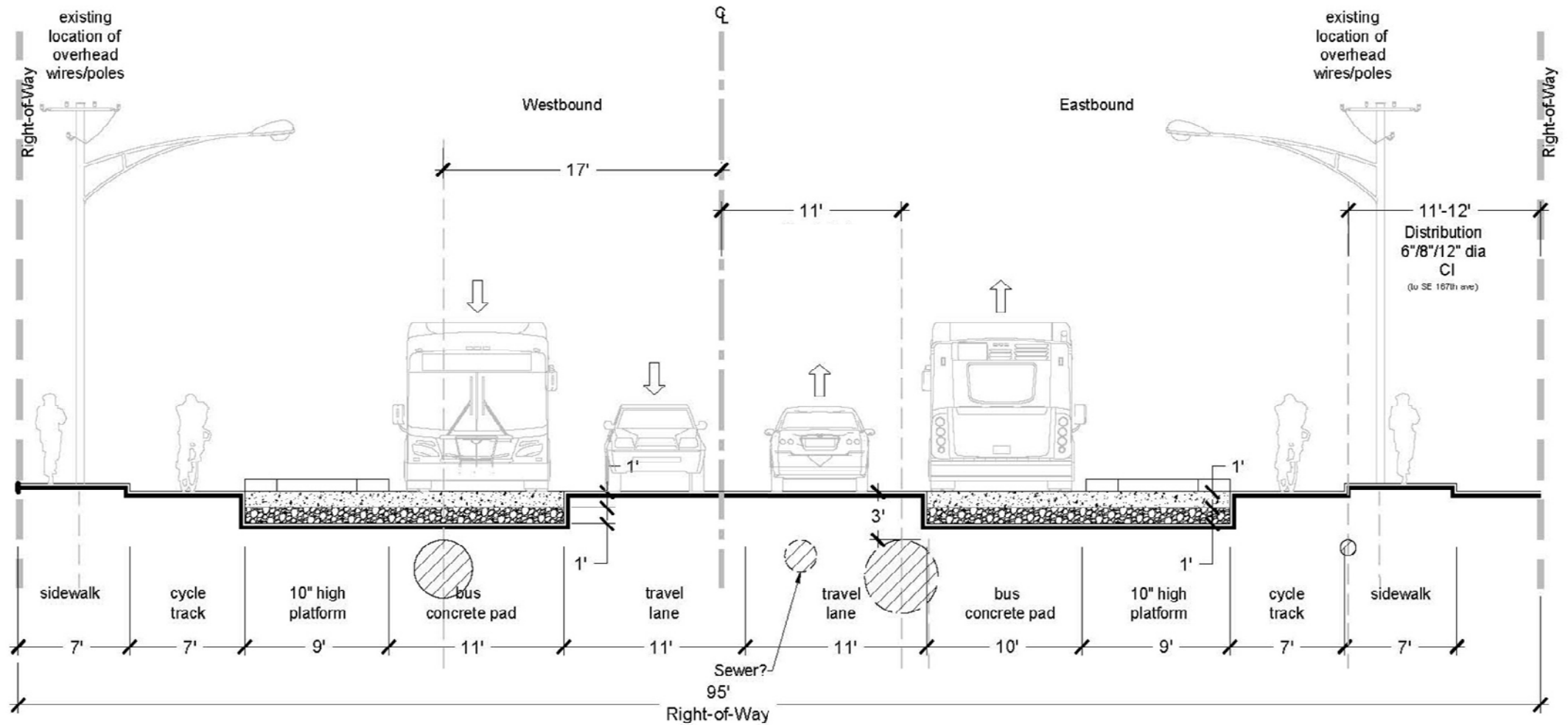
- Speed
- Reliability
- Safety

but we've got to calibrate the magnitude and speed of transformation

- don't want to eliminate access to homes or businesses
- don't want to limit this community's overall mobility
- don't want to impinge on this conduit of economic vitality



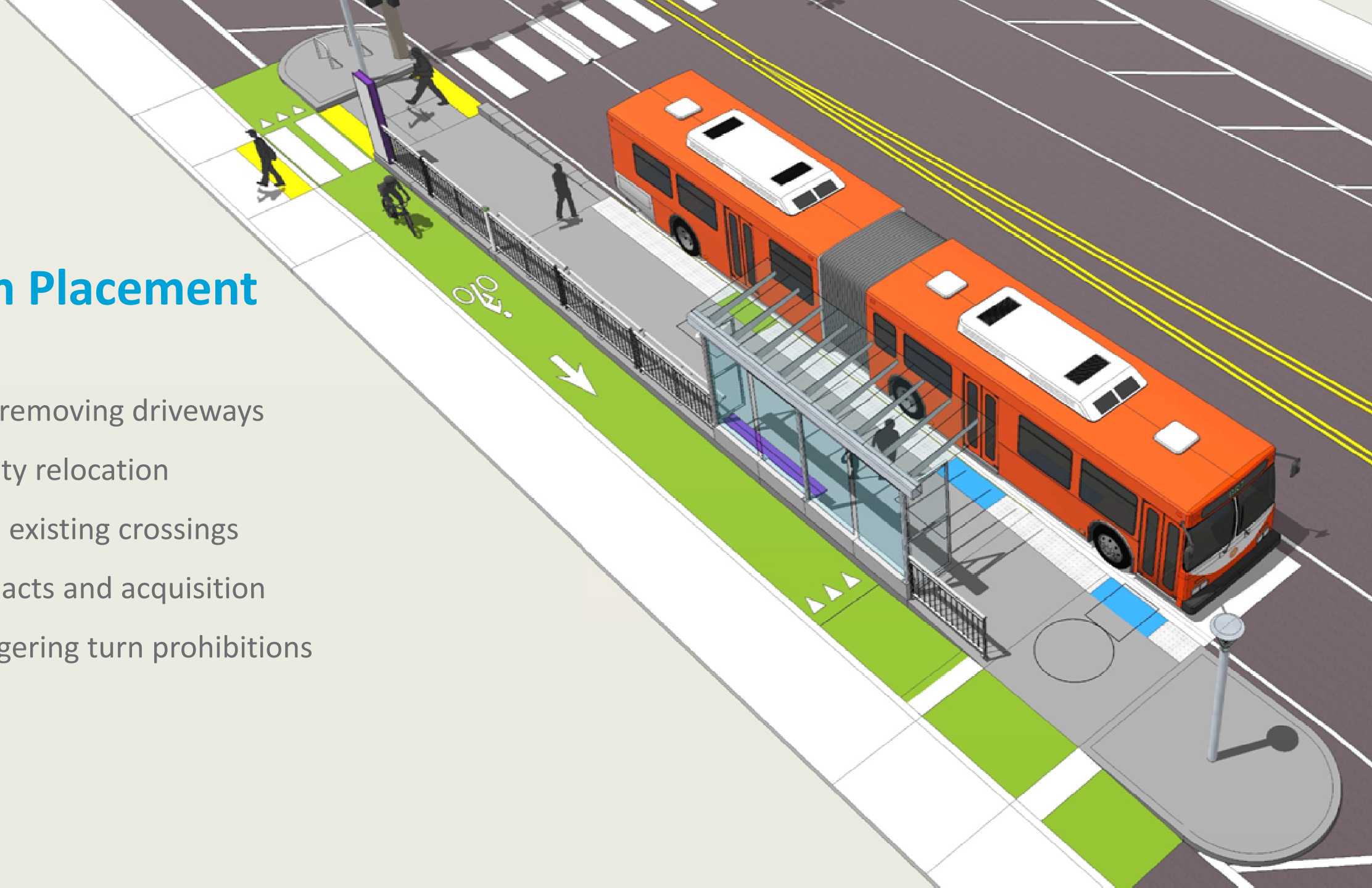
and we may not want to sink our precious resources into other factors



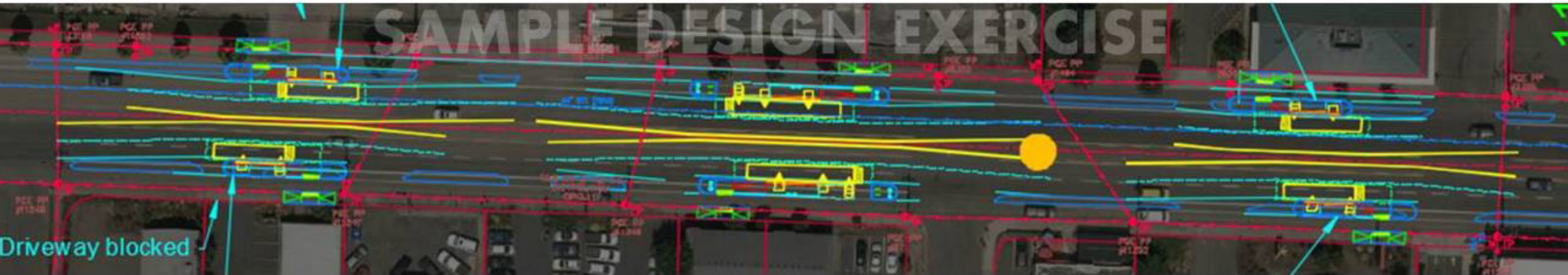
...so lets talk about **BALANCE**

Platform Placement

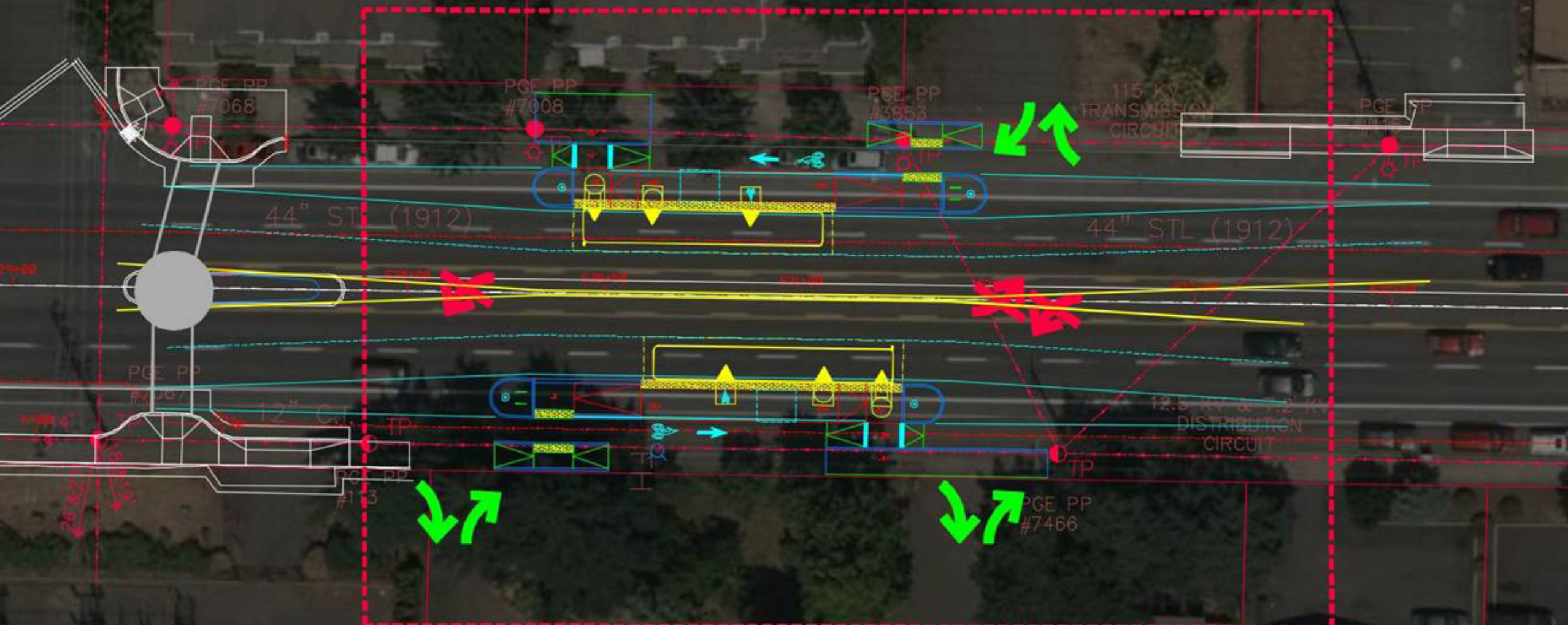
- Minimize removing driveways
- Avoid utility relocation
- Align with existing crossings
- Avoid impacts and acquisition
- Avoid triggering turn prohibitions

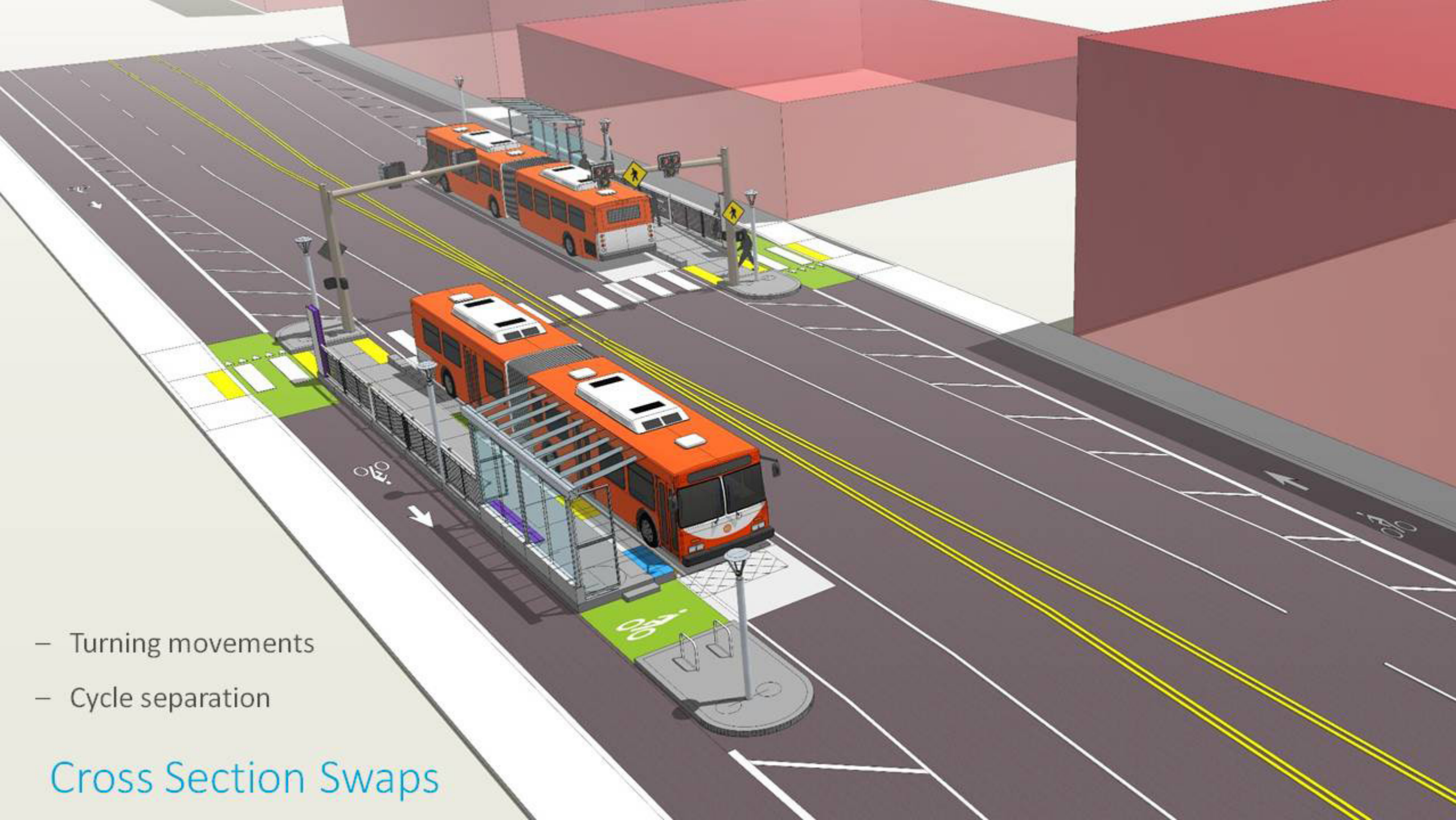


between many rocks and hard places...



SAMPLE DESIGN EXERCISE





- Turning movements
- Cycle separation

Cross Section Swaps

SAMPLE DESIGN EXERCISE



SAMPLE DESIGN EXERCISE



SAMPLE DESIGN EXERCISE



SAMPLE DESIGN EXERCISE



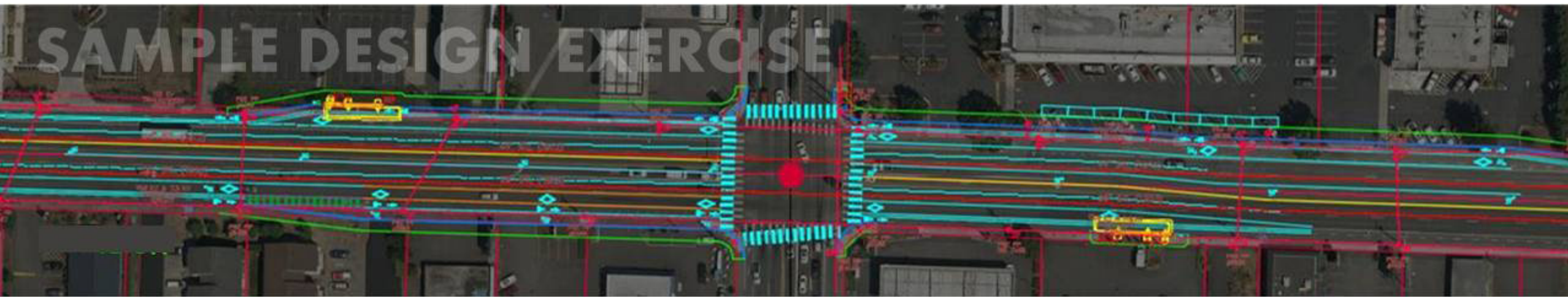


Crossing Proximity

- Existing minor signals
- Existing major signals
- New signals
- HAWKS
- RRFB

sometimes bigger solutions are warranted





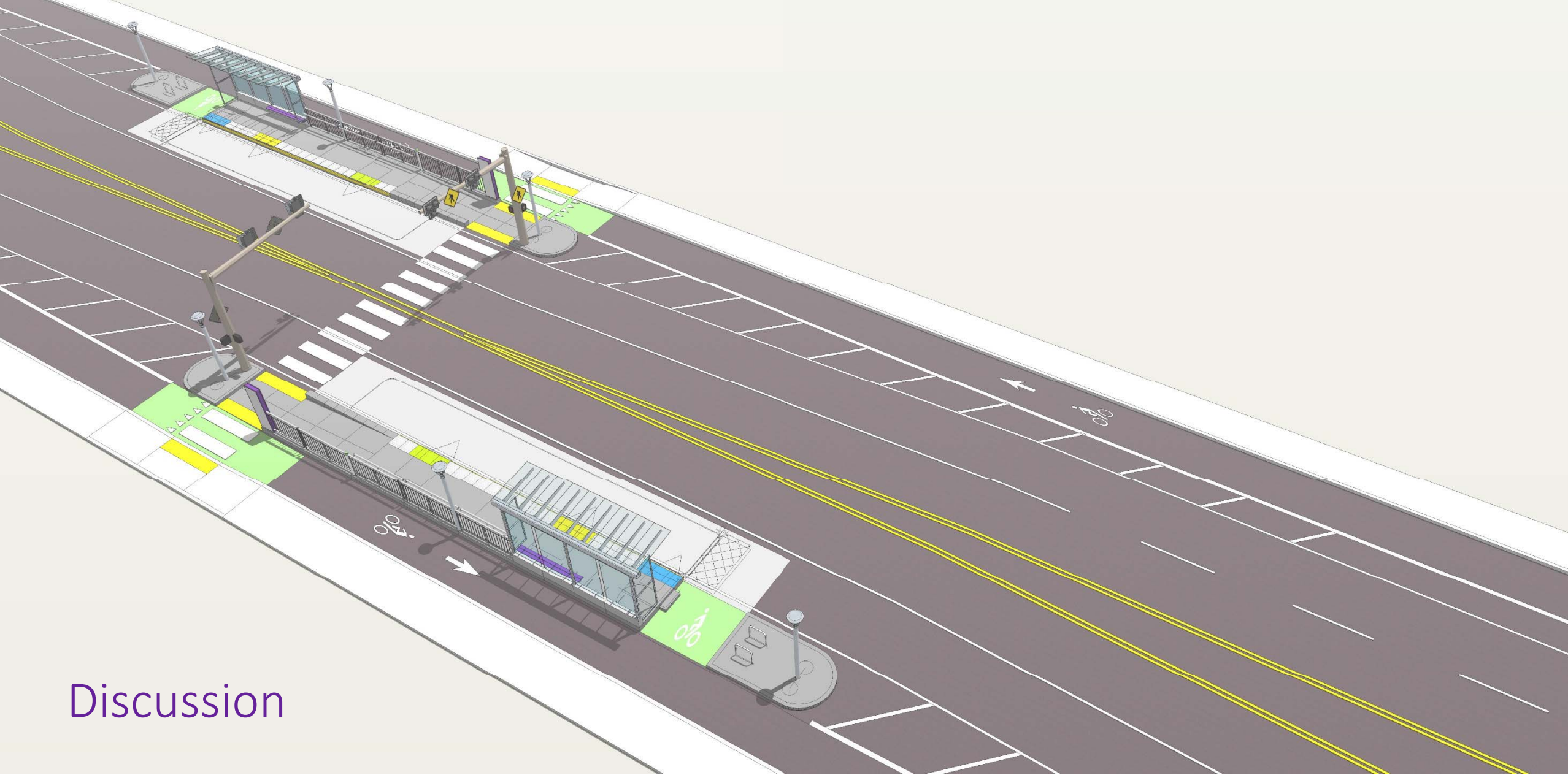
and other considerations must be balanced...



can we define the right INCREMENT of change?



- Safety is critical and immediate change is needed
- Want better service but not displacement
- Expend the limited funds on the right features for people
- Transit dollars come with performance strings attached
- Want transition and transformation of transport/land use
- But have to balance that against the impacts now



Discussion

CAC: Project Design Primer

20 april 17

