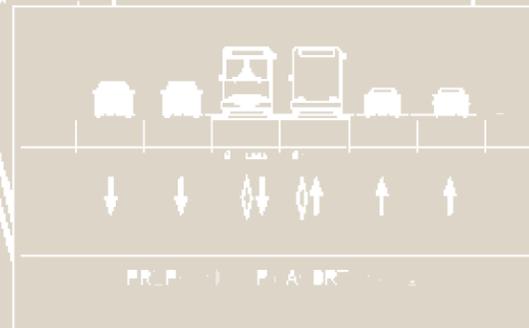
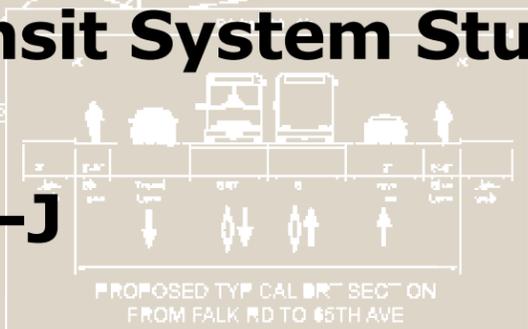
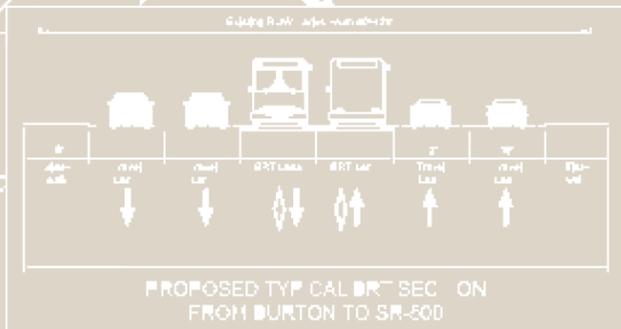


Clark County High Capacity Transit System Study Final Report: Map Appendices G-J



**Moving People -
Connecting Our Community**



December 2008

Southwest Washington Regional Transportation Council





Map Appendices

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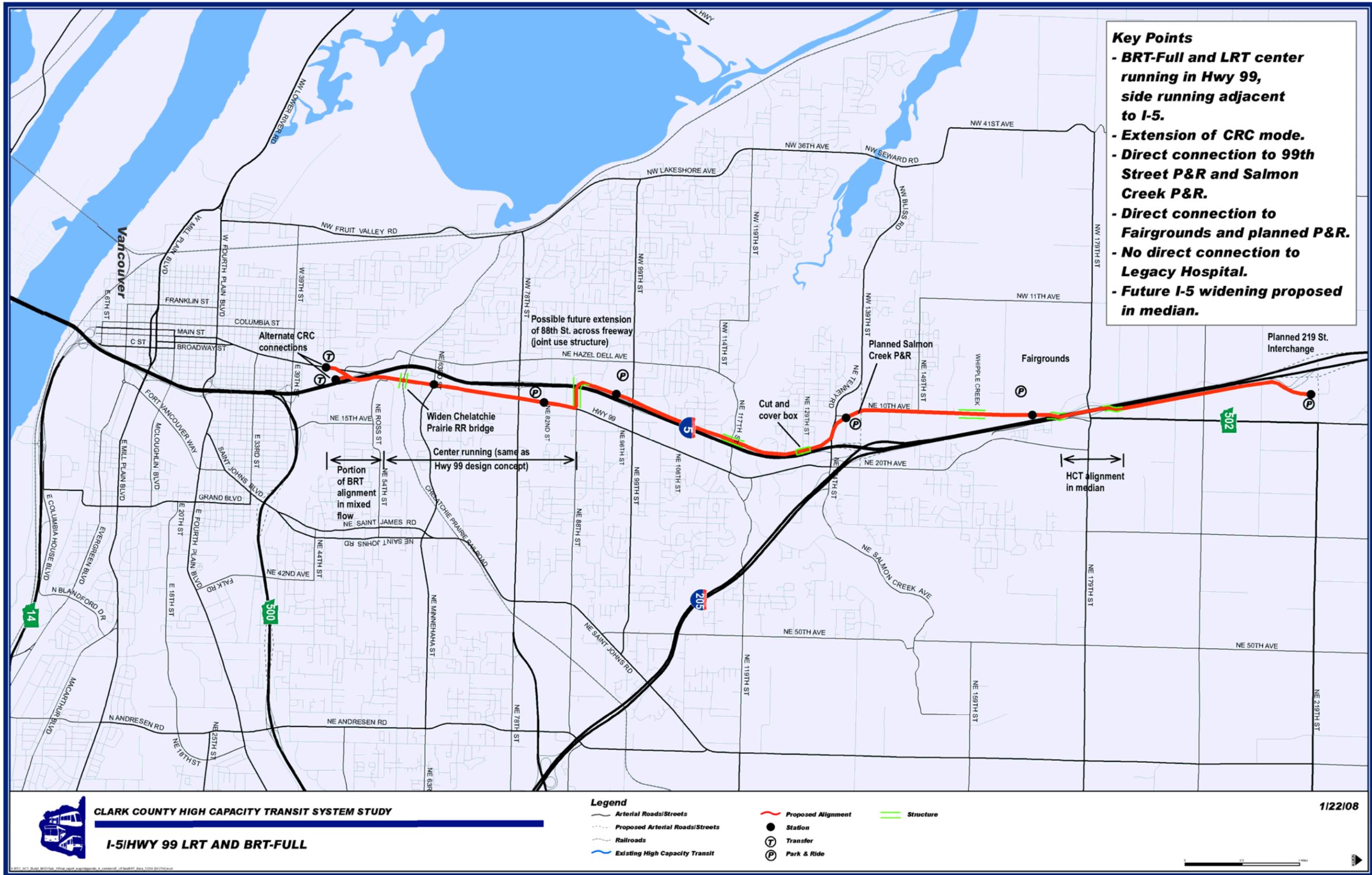
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Appendix G

Concept Design Maps

Figure G-1
I-5/Hwy 99 Alignment



**Figure G-2
Highway 99 Alignment**

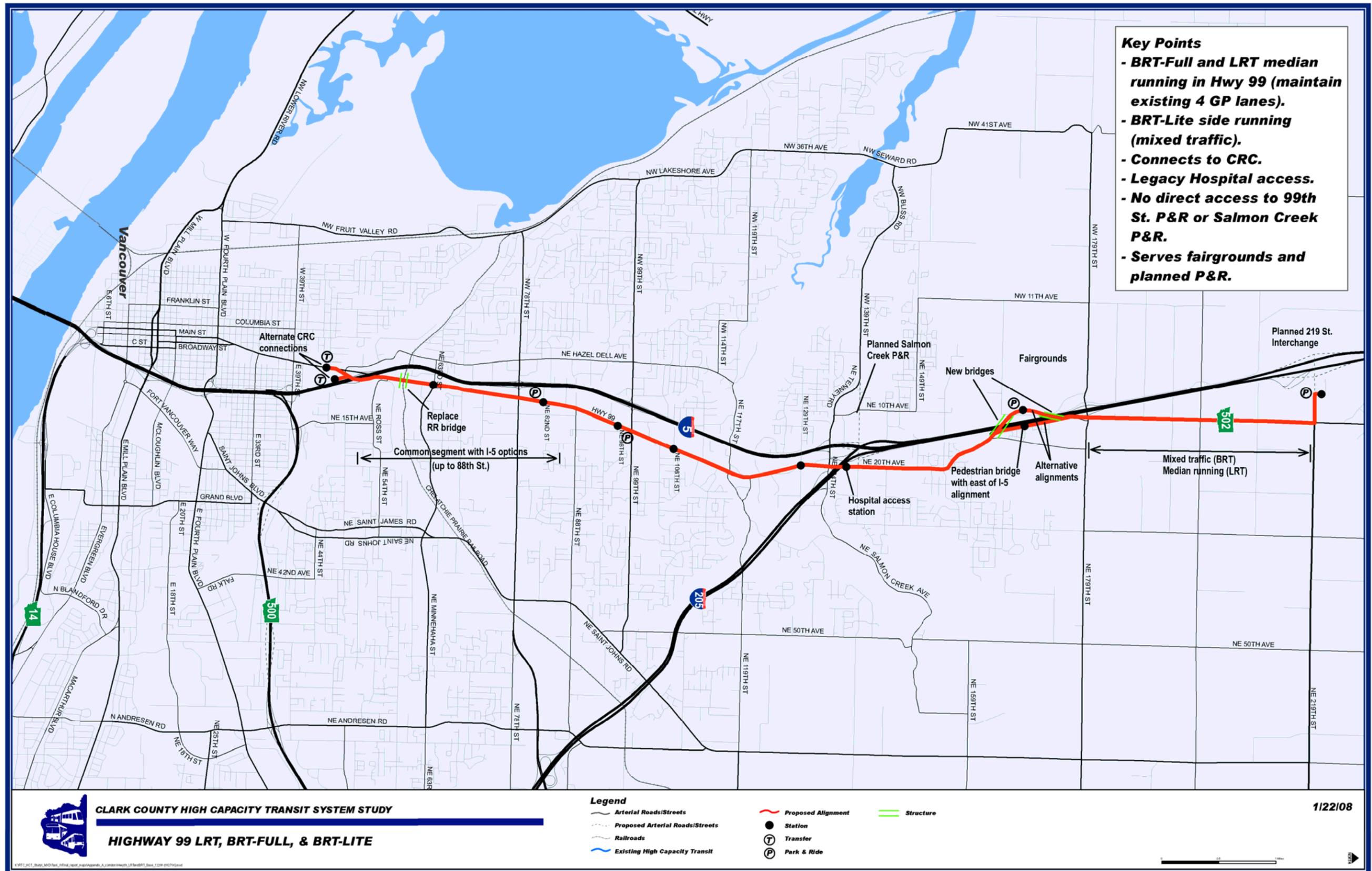
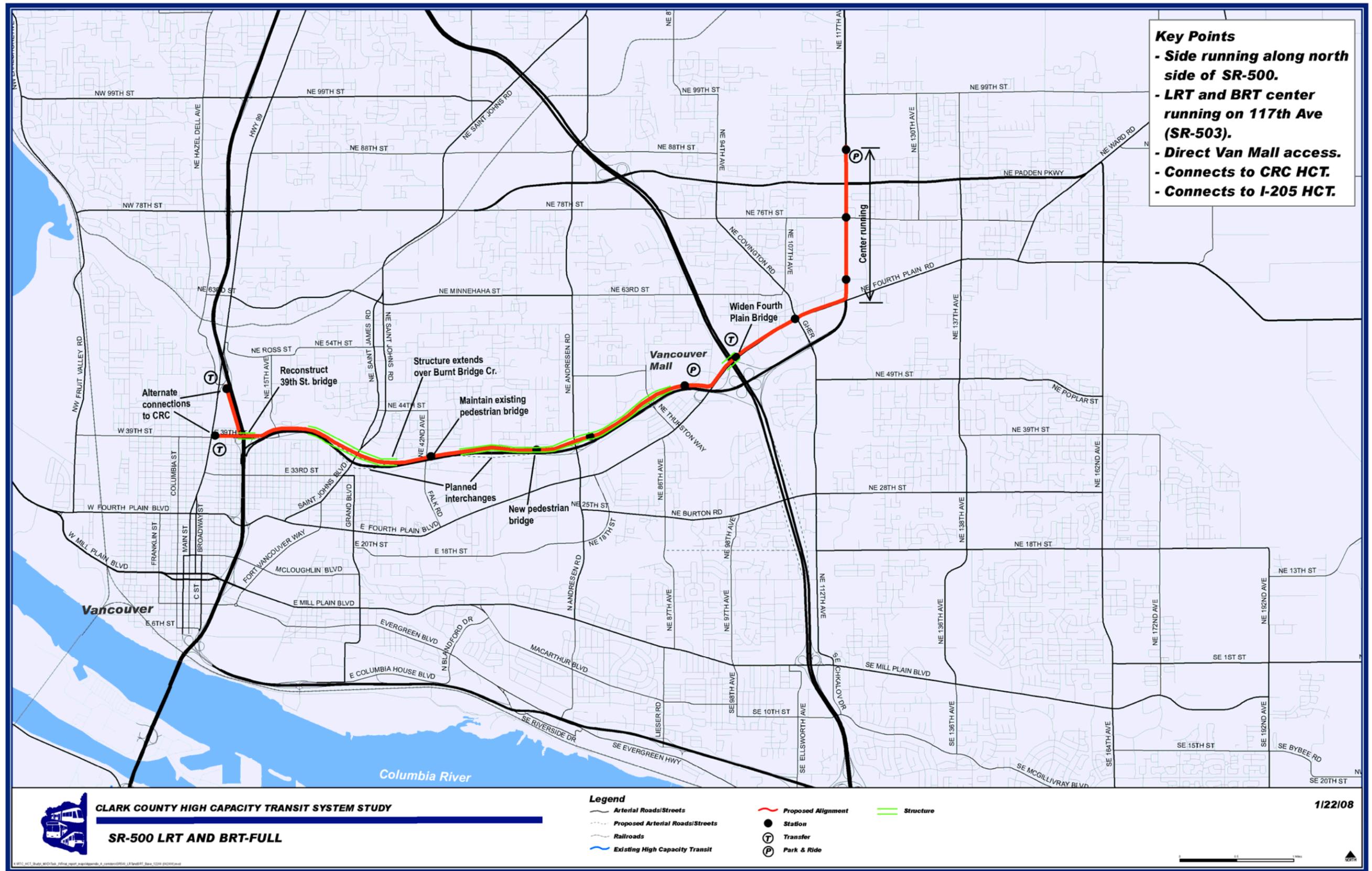
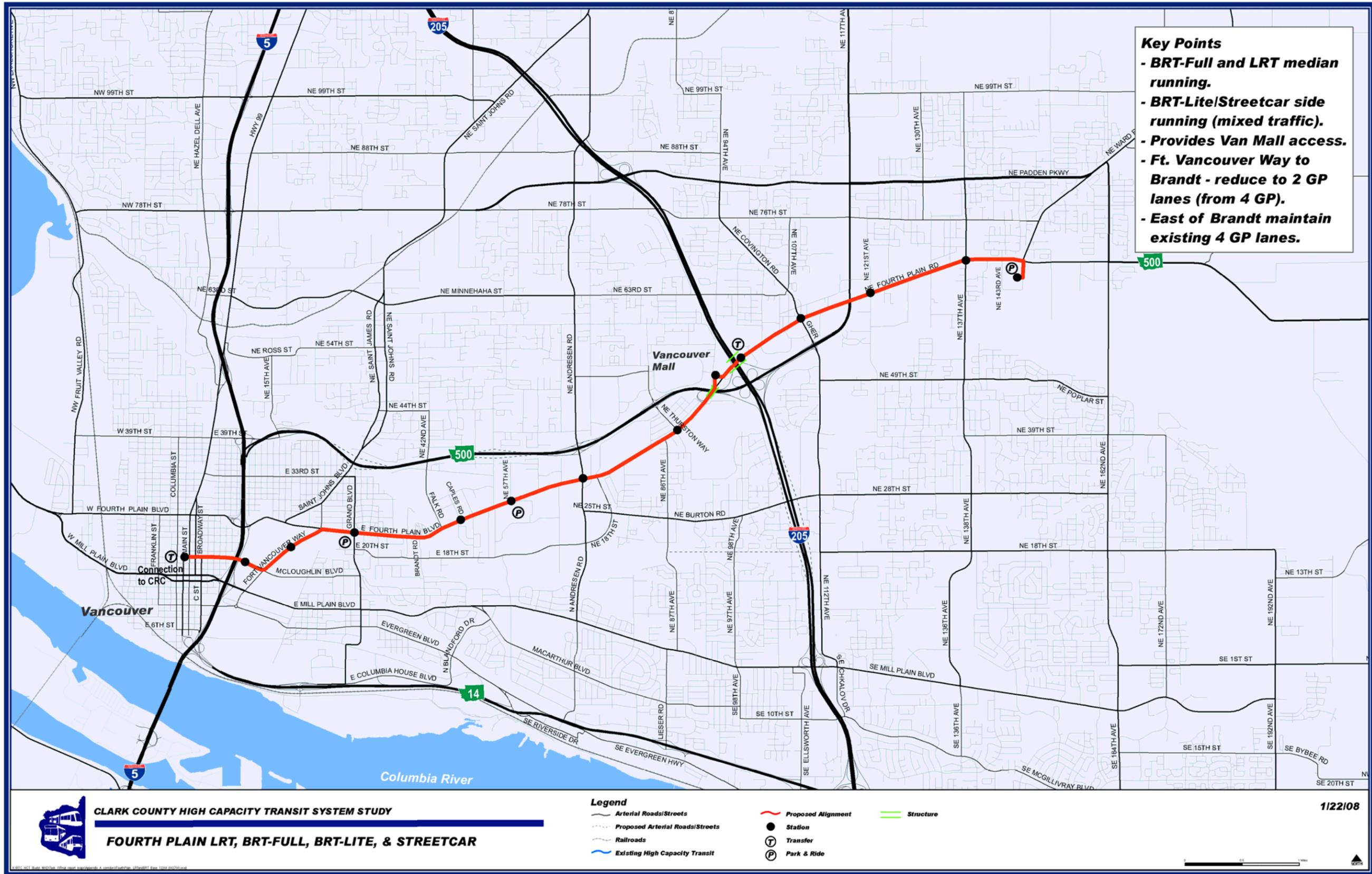


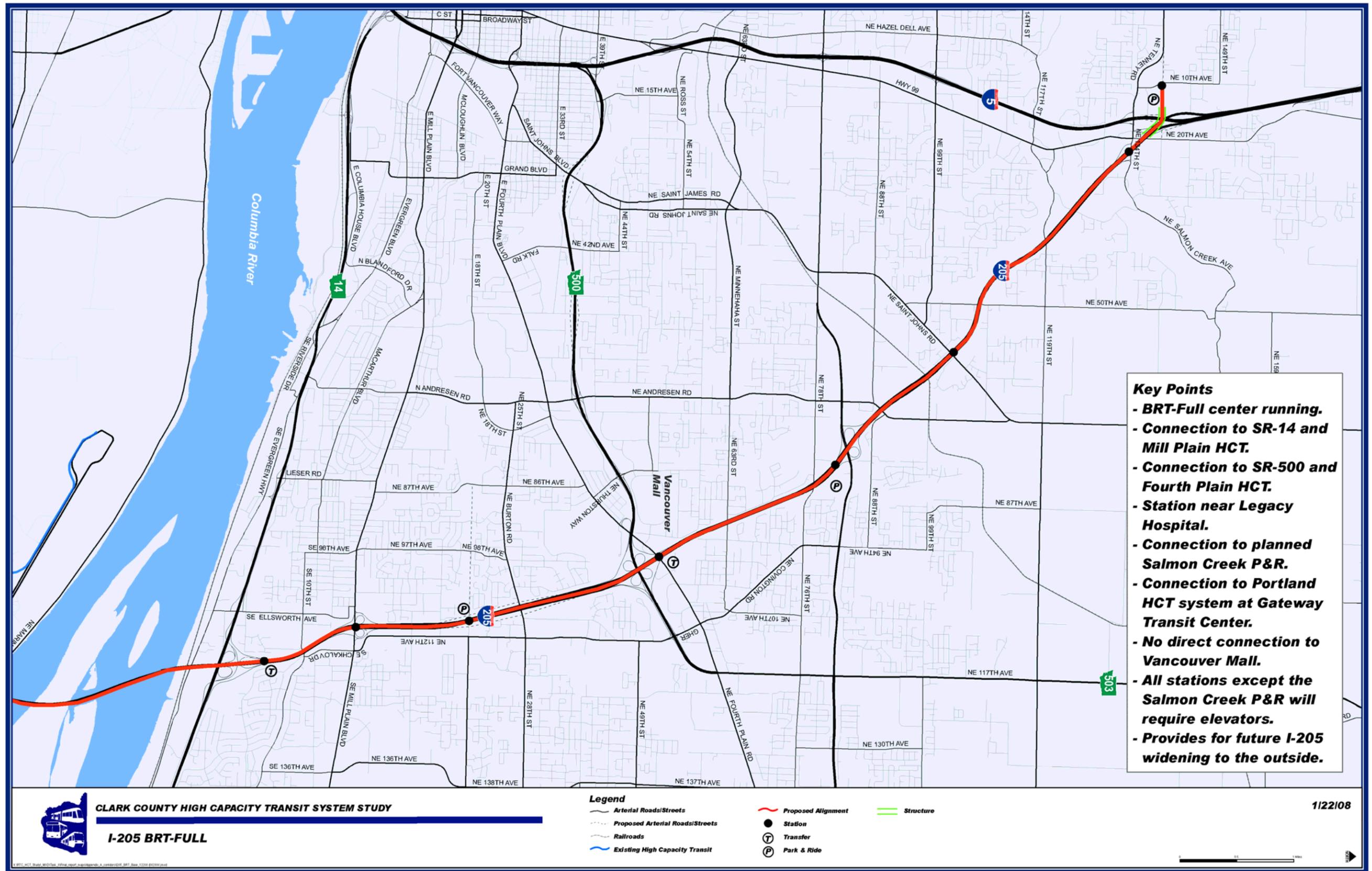
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Fourth Plain Alignment**



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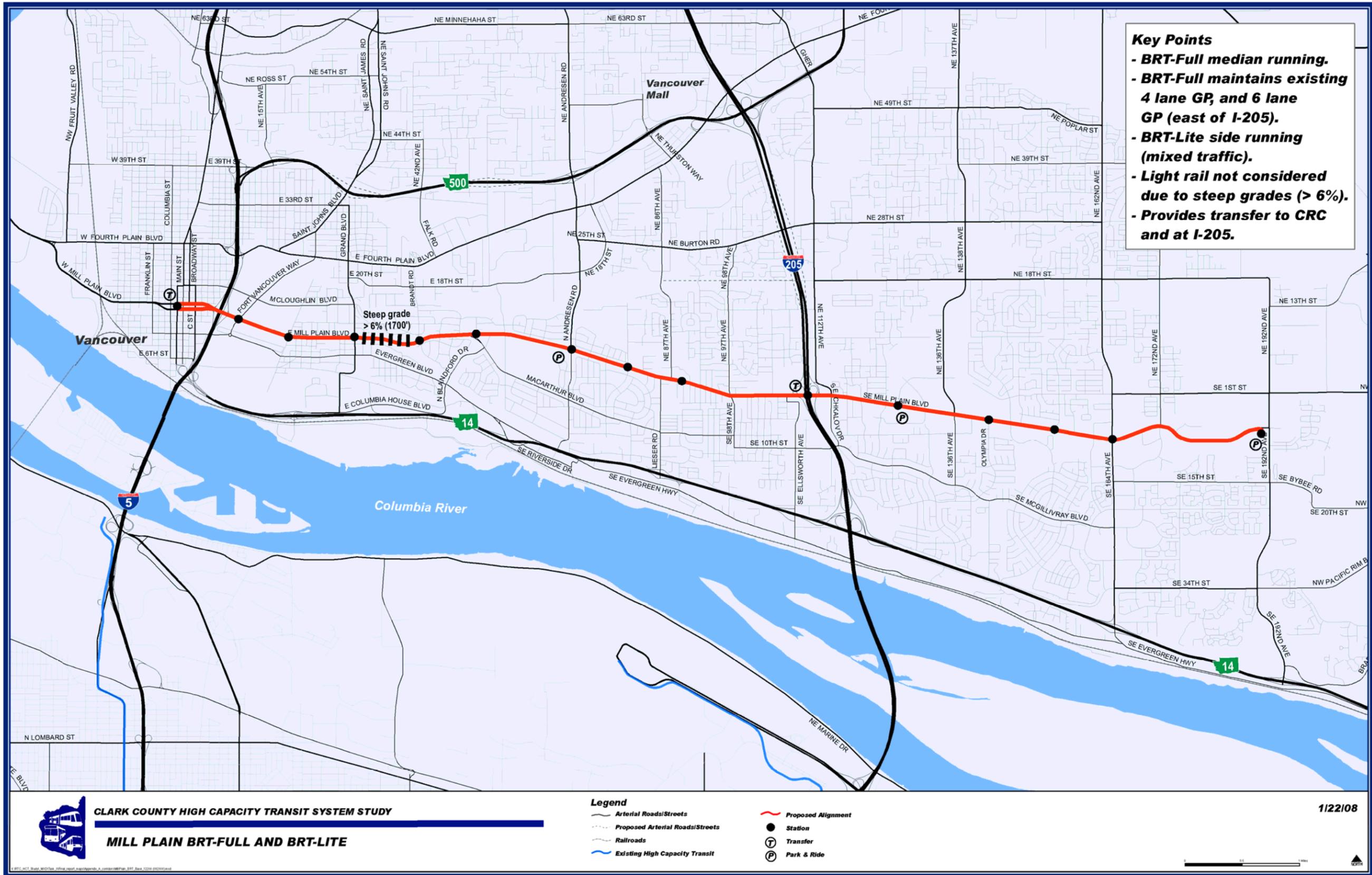
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Figure G-11
Mill Plain Alignment





Appendix H

Transportation Conditions and Issues

I-5/Highway 99 Corridor Planned Improvements

Projects in the I-5 HCT Corridor in 2005 MTP List

1. I-5/SR-500 Flyover Ramps, which would be completed as part of the Columbia River Crossing (CRC) Project.
2. NE 88th Street extension from NE Hazel Dell Avenue to Highway 99.
3. Construction of turn lanes on NE 88th Street intersections from Highway 99 to NE Andresen Road.
4. NE 99th Street extension from NE St. Johns Road to NE 72nd Avenue.

Projects in Summer 2007 Working Draft of the WSDOT 2007-2026 HSP

5. I-5/I-205 Interchange improvements including widening NE 134th Avenue and adding ramps to southbound I-205.
6. Intelligent transportation system (ITS) improvements along I-5 throughout and north of the HCT corridor. Planned ITS measures include traffic cameras, wireless communication ports and data stations.
7. I-5/Highway 99 interchange improvements including an additional southbound through lane on Highway 99 and other intersection improvements.
8. Auxiliary lanes on I-5 including southbound from NE 139th Street to NE 179th Street and in both directions from NE 179th Street to NE 219th Street.
9. I-5/NE 179th Street interchange reconstruction.

WSDOT Improvement Projects Currently In Progress

10. I-5 widening to three lanes in each direction between the 99th Street interchange and I-205.
11. A new interchange at I-5/SR-502/NE 219th Street (2008).
12. Reconstruction of the Salmon Creek interchange, which will include extending NE 139th Street from NE 20th Avenue to NE 10th Avenue, additional freeway ramp connections and improvements to NE 10th Avenue (2010-2013).
13. Auxiliary lanes from I-205 to NE 179th Street.

**Figure H-1
I-5/Hwy 99 Corridor**

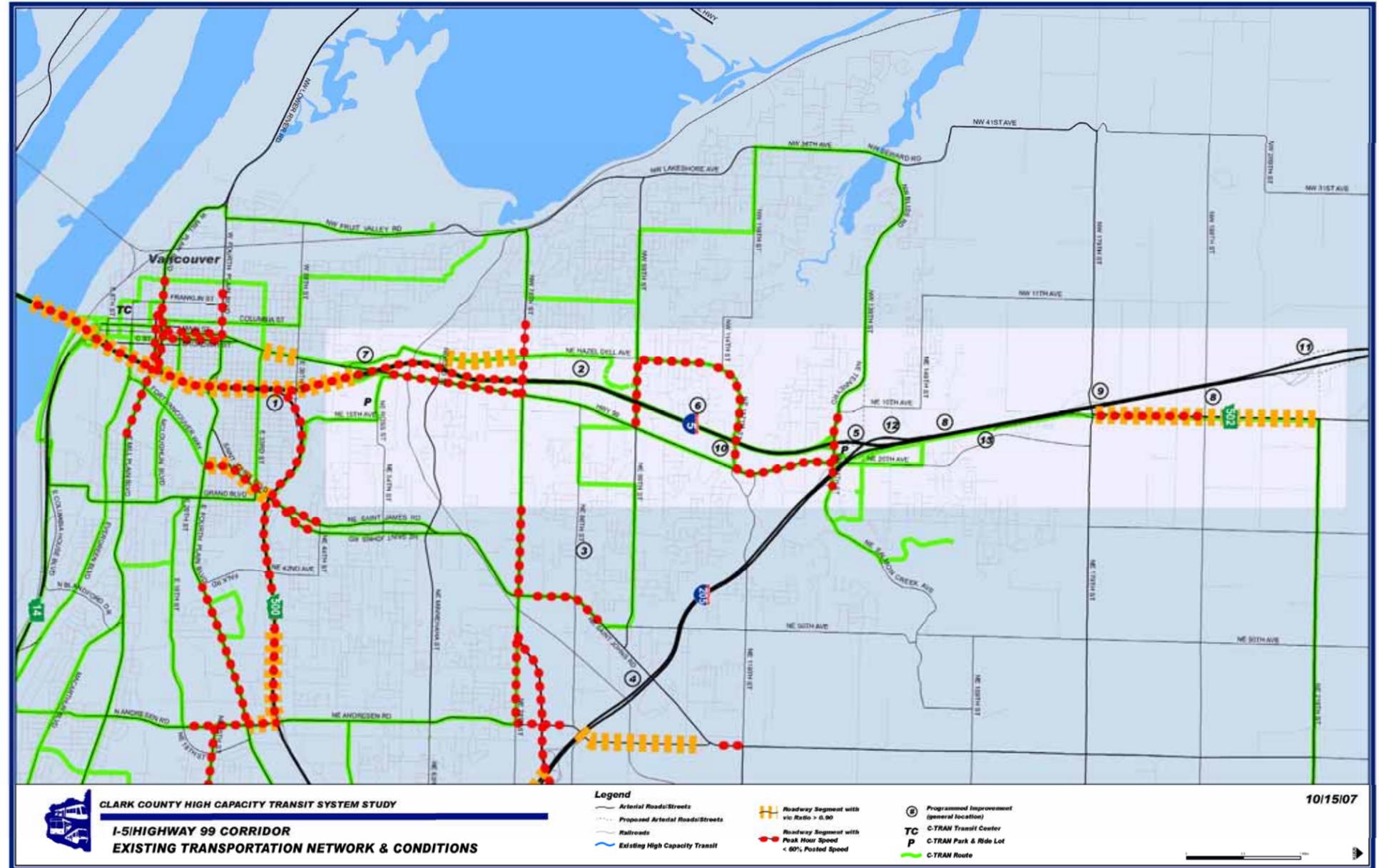
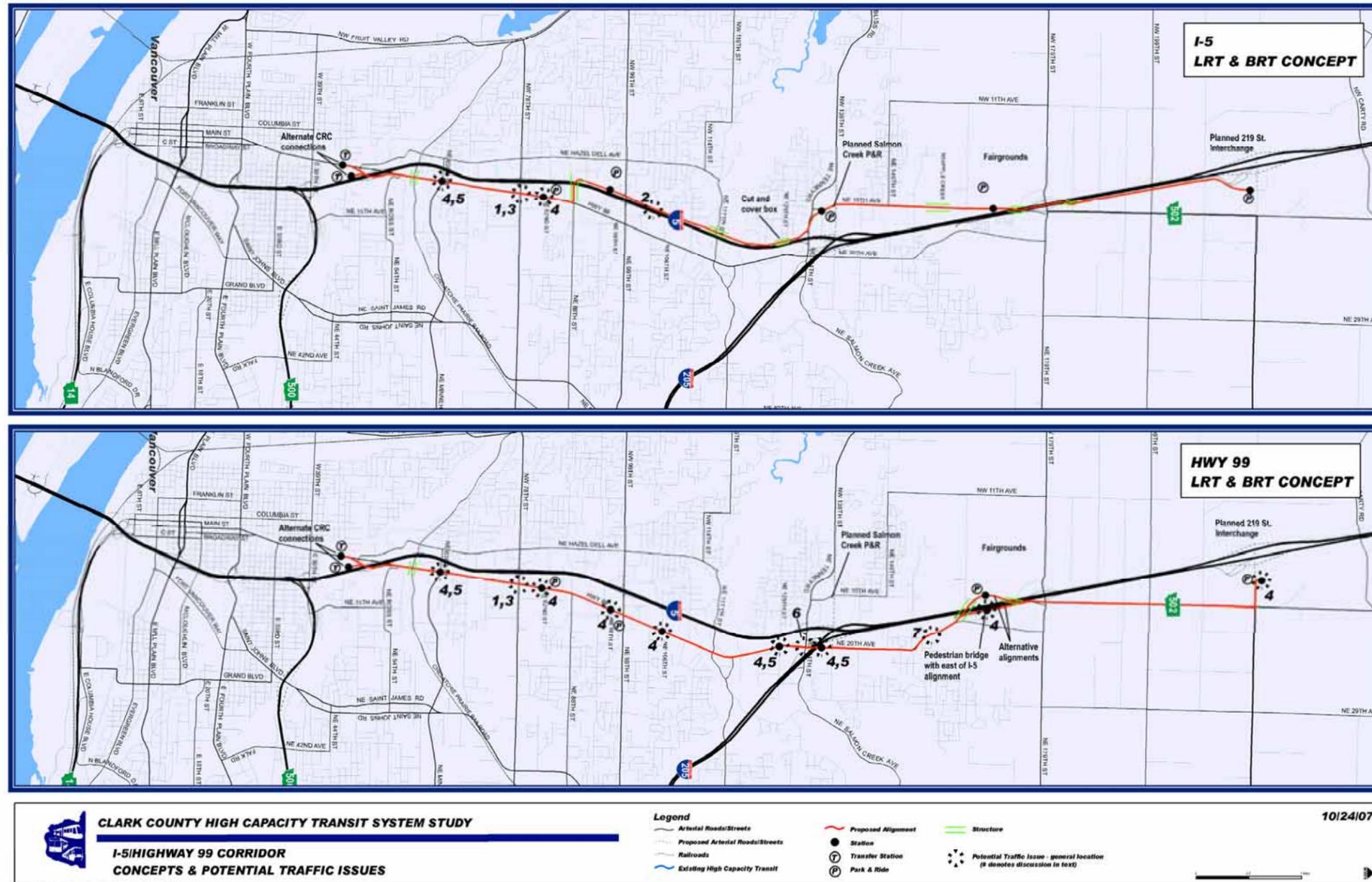


Figure H-2
I-5/Hwy 99 Corridor



I-5/Highway 99 Corridor Potential Traffic Issues

I-5/Hwy 99 Alignment

1. **NE 78th Street Interchange:** There are about 350 feet of storage on the west leg of the intersection of Highway 99/NE 78th Street. Should the I-5 corridor advance with a center median alignment along Highway 99 at NE 78th Street, detailed traffic analysis would need to ensure queuing extending back from the intersection would not impede northbound off-ramp traffic at the interchange.
2. **Separation of Local Traffic along NE Stutz Road:** This local road is immediately adjacent to the west side of I-5 for about 2,650 feet north of NE 99th Street, in roughly the same location as the conceptual LRT/BRT alignment. Design measures would be needed to safely accommodate vehicular and pedestrian traffic from the residential and commercial development adjacent to NE Stutz Road.

Highway 99 Alignment

3. **NE 78th Street Interchange:** There are about 350 feet of storage on the west leg of the intersection of Highway 99/NE 78th Street. Should the I-5 corridor advance with a center median alignment along Highway 99 at NE 78th Street, detailed traffic analysis would need to ensure queuing extending back from the intersection would not impede northbound off-ramp traffic at the interchange. I-5 design concepts would have the same potential issue.
4. **Pedestrian Crossing Design:** The Highway 99 LRT and BRT-Full design concepts would require design refinements to ensure drivers would be aware of pedestrians crossing to or from a median station. Safety design measures would need to reflect a full range of pedestrian mobility, age and sensory disabilities.
5. **Driver Information:** Similar design refinements would be needed to alert drivers making right turns onto Highway 99 at far side station locations, and more generally when HCT vehicles were approaching intersections from either direction.
6. **Salmon Creek Area:** The Highway 99 HCT alignment would run through the intersection of NE 20th Avenue/NE 134th Street, which is one of three signalized intersections within about 600 feet. Several major improvements are planned for this area as listed earlier in this document. If any of the Highway 99 HCT design concepts advance, detailed traffic analysis will be necessary to evaluate future traffic on this segment of NE 134th Street with HCT and future planned improvements in place.
7. **Driveway Access:** The HCT alignment along NE 20th Avenue would pass several residential driveways. If any of the Highway 99 HCT design concepts advance, design measures would be needed to ensure safe driveway access. Parking and access to existing commercial and industrial uses further north on NE Union Road would need to be reconfigured to reduce potential conflicts. The NE 10th Avenue frontage also has numerous residential driveways with similar concerns.

SR-500/Fourth Plain Corridor Planned Improvements

Projects in the SR-500/Fourth Plain HCT Corridor in 2005 MTP List

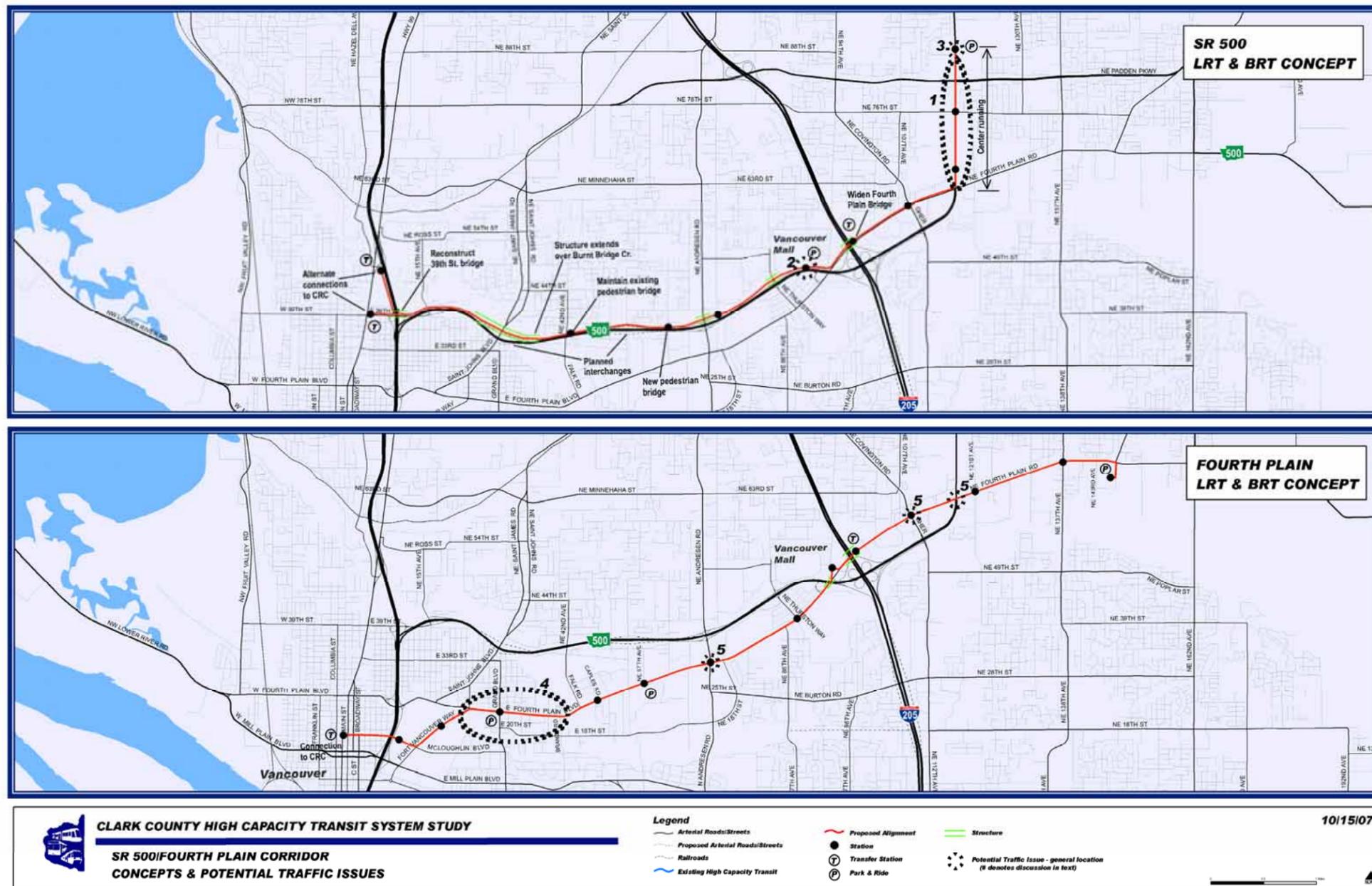
1. I-5/SR-500 flyover ramps (part of the Columbia River Crossing project)
2. I-205, 28th Street to SR-500, construct ramps (WSDOT)
3. I-205/SR-500, westbound-to-southbound flyover ramp (WSDOT)
4. SR-500 at I-205, add ramp lane (WSDOT)
5. SR-500 at St. Johns, build new interchange (WSDOT)
6. SR-500 at 42nd Avenue, grade separate 42nd Avenue (WSDOT)
7. SR-500 at 54th Avenue, build new interchange with collector-distributor system connecting to ramps at SR-500/Andresen interchange (WSDOT)
8. SR-500 at SR-503/Fourth Plain, construct turn lanes (WSDOT)
9. Fourth Plain Boulevard/65th/66th Avenue, intersection realignment (Vancouver)

Projects in Summer 2007 Working Draft of the WSDOT 2007-2026 HSP

10. SR-500, I-5 to I-205, widen to six lanes and rebuild interchanges (to accommodate increased demand resulting from completion of the Columbia River Crossing project).



**Figure H-4
SR-500/Fourth Plain Corridor**



SR-500/Fourth Plain Corridor Potential Traffic Issues

SR-500 Alignment

1. Intersections with at-grade center median BRT or LRT: Should this design concept proceed, the design refinements would need to ensure that pedestrians crossing NE 117th Avenue (SR-503) would be aware of BRT or LRT approaching and/or leaving the intersection. Safety design measures would need to reflect a full range of pedestrian mobility, age and sensory disabilities.
2. Westfield Vancouver Mall Park-and-Ride Station: This location would be about ¼ mile from the mall. Design features along the pedestrian desire line between the station and the mall would need to blend the pedestrian needs with parking lot function to ensure safe and reasonably direct pedestrian access.
3. Terminal park-and-ride station: An earlier concept showed the station for embarking HCT passengers located opposite the park-and-ride lot on the west side of NE 117th Avenue/SR-503. It would be preferable to have one location for passenger loading and unloading so patrons could park and board without crossing a major arterial.

Fourth Plain Alignment

4. Lane reduction from Brandt Road to Ft. Vancouver Way: The lane reduction from 4 lanes to 2 lanes has the potential to divert some traffic to other east-west arterials such as Mill Plain Boulevard, Burton Road/18th Street, and SR-500. The lane reduction could also result in longer peak hour queues that could spill over into adjacent intersections. If any of the Fourth Plain design concepts were to move forward, additional analysis of projected future traffic volumes should be conducted using traffic simulation software for morning and evening peak hour conditions.
5. Intersection Capacity Impacts: A similar concern, if either the BRT or LRT center median design concepts were to advance, is whether key intersections would have adequate capacity to accommodate peak hour demand without unacceptable impacts on traffic movement through adjacent intersections. With a raised center median, secondary side street and driveway traffic would be restricted to right turns. Where left turns would be permitted, care should be given to ensure that left-turn pockets provide enough capacity so that left-turn queues would not extend into the through-traffic lanes. Specific intersections of concern are likely to include NE Fourth Plain Boulevard at NE Andresen Road, SR-500/NE 117th Avenue, and NE Covington Road/Gher Road; detailed traffic analyses could reveal additional locations.

I-205 Corridor Planned Improvements

Projects in the I-205 HCT Corridor in 2005 MTP List

1. Reconstruction of the I-205/SR-14 interchange.
2. A northbound off-ramp from I-205 to NE 112th Avenue.
3. Ramps/frontage road between Mill Plain and 28th Streets.
4. Ramps between NE 28th Street and SR-500.
5. New connector roads along I-205 from NE 18th Avenue to NE 28th Avenue.
6. Ramp separation between I-205/SR-500 and I-205/SR-14 interchanges.
7. Westbound SR-500 to southbound I-205 flyover.
8. Rebuild I-205/Padden Parkway interchange.
9. Widen I-205 to three lanes in each direction from SR-500 to Padden Parkway.
10. Widen SR-14 to three lanes in each direction from I-205 to SE 164th Avenue.
11. Extend westbound auxiliary lane at I-205/SR-500 interchange.

Projects in Summer 2007 Working Draft of the WSDOT 2007-2026 HSP

12. I-5/I-205 interchange improvements including widening NE 134th Street and adding ramps to southbound I-205.

WSDOT Improvement Projects Currently In Progress

13. I-5 widening to three lanes in each direction between the 99th Street interchange and I-205.
14. Reconstruction of the Salmon Creek interchange, which will include extending NE 139th Street from NE 20th Avenue to NE 10th Avenue, additional freeway ramp connections and improvements to NE 10th Avenue (2010-2013).
15. Auxiliary lanes on I-5 from I-205 to NE 179th Street.

**Figure H-5
I-205 Corridor**

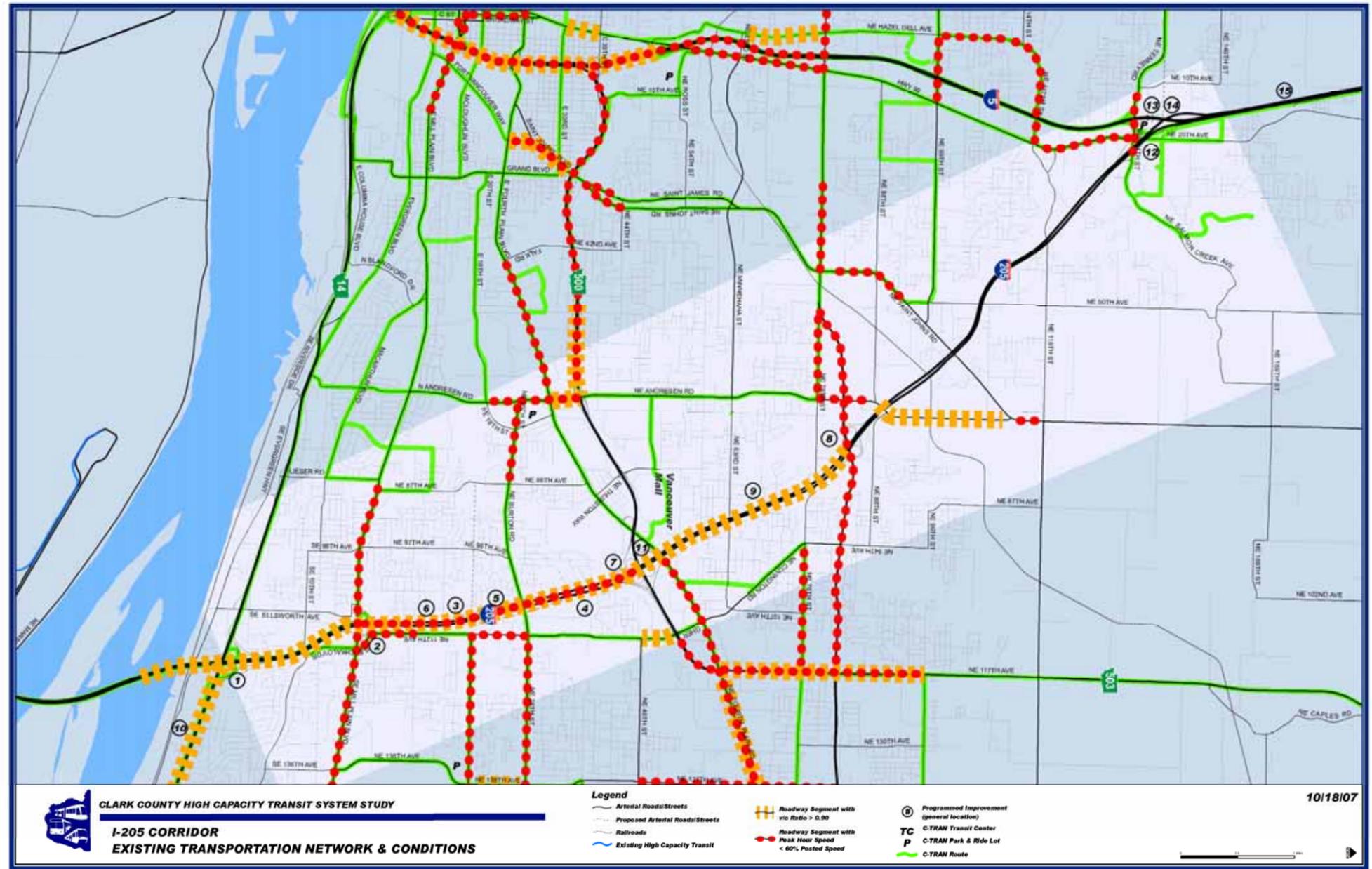
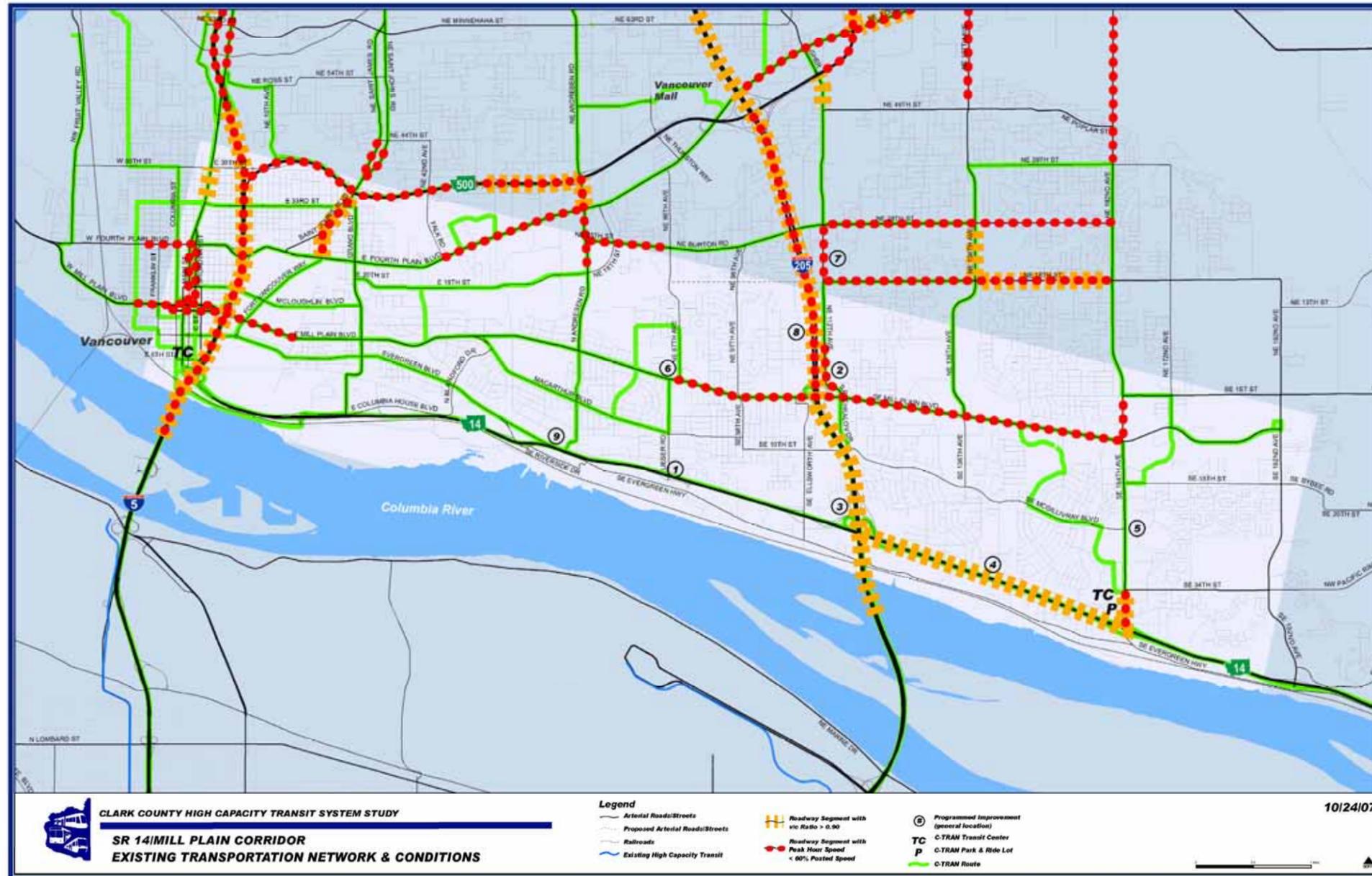


Figure H-6
SR-14/Mill Plain Corridor



SR-14/Mill Plain Corridor Planned Improvements

Projects in the SR-14/Mill Plain HCT Corridor in 2005 MTP List

1. SR-14/Lieser Road, interchange signalization (WSDOT)
2. I-205/Mill Plain exit, NE 112th Ave connector (WSDOT)
3. I-205, SR-14/Mill Plain interchange ramp separation (WSDOT)
4. SR-14, add auxiliary lane in each direction from I-205 to 164th Avenue, (WSDOT)
5. SE 164th Avenue, SE 1st to SR-14, intersection improvements (City of Vancouver)
6. SE Lieser Road/NE 87th Avenue intersections at SE Mill Plain Boulevard, align offset intersections (City of Vancouver)
7. SE 112th Avenue, SE Mill Plain Boulevard to SE 49th Avenue, widen to 2 lanes each direction with turn lanes (City of Vancouver)
8. I-205, NE Mill Plain Blvd. to NE 28th Street, construct ramps and frontage road system (WSDOT)
9. SR-14, I-5 to I-205, widen to six lanes and rebuild interchanges (to accommodate increased demand resulting from completion of the Columbia River Crossing project)

SR-14/Mill Plain Corridor Potential Traffic Issues

SR-14 LRT Alignment

- SR-14 westbound off-ramp/Columbia House Boulevard intersection:** Additional traffic to/from the park-and-ride could create morning peak period congestion at the stop-controlled intersection of Columbia House Boulevard and the SR-14 westbound off-ramp. Further analysis should be conducted for the intersection of the SR-14 westbound off-ramp/Columbia House Boulevard if the any of the SR-14 HCT Design Concepts move ahead.
- Gated crossing at the SE Lieser Road and SE Ellsworth Road interchanges:** At SE Lieser Road and SE Ellsworth Road, the westbound on/off ramps would be reconstructed south of the existing location to separate them from the LRT tracks. Vehicle queues created by the gated LRT crossings would be unlikely to affect traffic operations on adjacent roadways.
- Integration of LRT and Neighborhood Traffic:** At the eastern end of the LRT Design Concept the alignment runs adjacent to SE 27th Street and SE Cascade Park, both neighborhood streets. If this Design Concept proceeds further, design measures would need to ensure a safe and functional combination of LRT with neighborhood travel patterns (i.e., local vehicular traffic, residential driveway and on-street parking access, and bicycle and pedestrian activity).

SR-14 BRT-Full Alignment

- At-grade crossings:** Potential traffic impacts of at-grade BRT crossings adjacent to SR-14 ramp terminal intersections at SE Riverside Drive, SE Lieser Road and SE Ellsworth Road.
- Integration of BRT and Neighborhood Traffic:** Design measures would need to address the impact of buses on SE 27th Street and SE Cascade Park in terms of pedestrian safety, parking, residential access and overall traffic operations on residential streets.

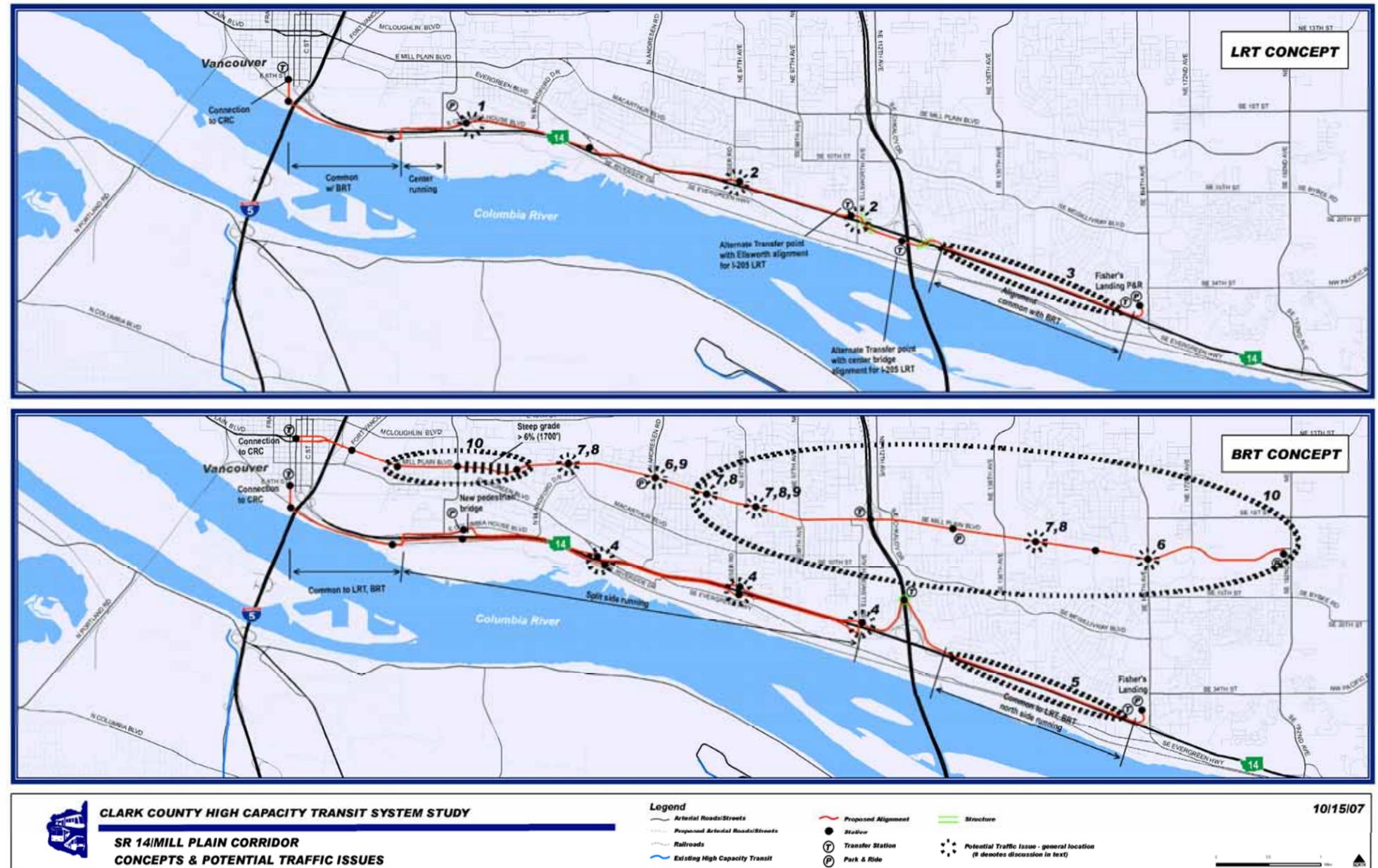
Mill Plain BRT-Full Alignment

- Potential Impacts of Rerouted Left-Turn Traffic:** Several stations are shown at signalized intersections with relatively high left turn volumes from Mill Plain Boulevard. Further analysis would be necessary to determine if it is feasible to maintain left turn traffic from Mill Plain at these locations.
- Mid-block/driveway Access:** Driveway traffic that crosses or enters the existing center median to make a left turn would need to be rerouted. Traffic impacts resulting from these rerouted trips would need to be considered.
- Access to Mid-Block Stations:** Station and adjacent streetscape design would need to ensure the safety of passengers crossing Mill Plain to the median stations.

Mill Plain BRT-Lite Alignment

- Intersection Capacity Impacts:** Accommodating peak demand and retaining BRT viability at high-volume intersections could be an issue. Turn-lane queues extending into through lanes could affect the ability of BRT to provide travel time advantages.
- Serving Bicycle Travel Demand:** If no additional bike lanes were provided in the future on Mill Plain Boulevard, bicycle traffic would share the outside lane with BRT and general traffic in some segments. A more detailed assessment may be necessary of potential bicycle travel demand and the availability of alternate bike routes.

**Figure H-7
SR-14/Mill Plain Corridor**

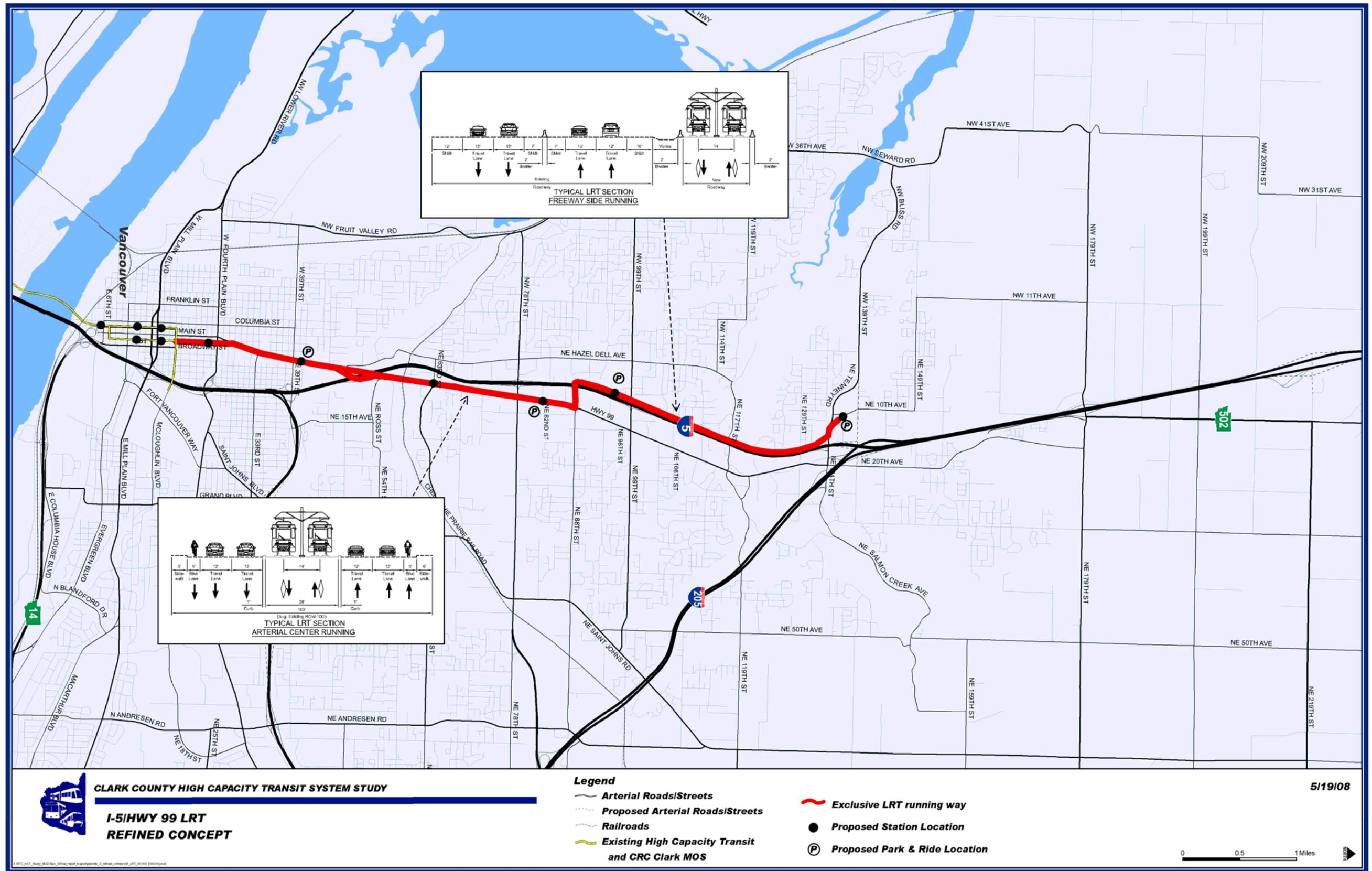




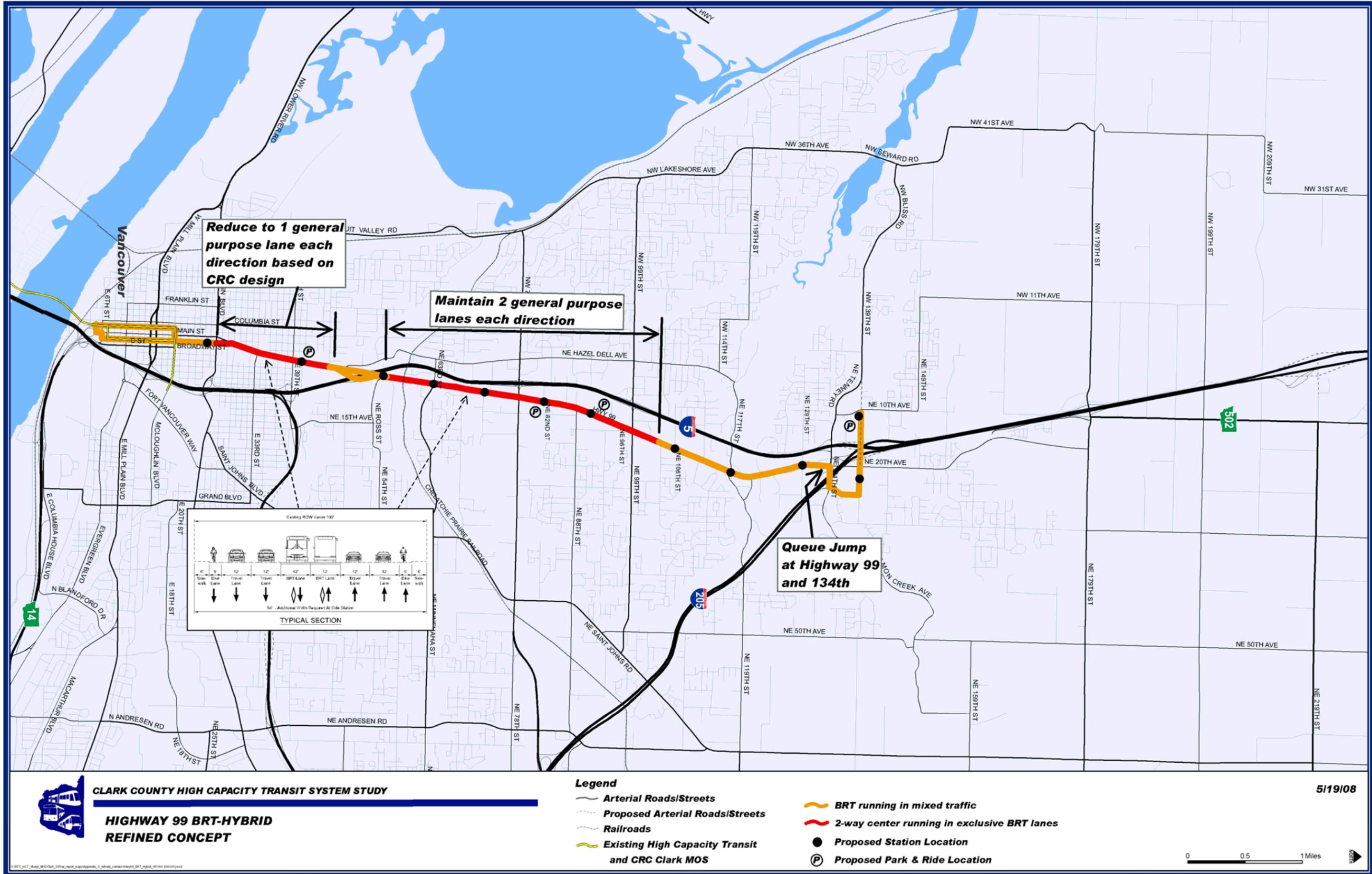
Appendix I

Refined Concept Design Maps

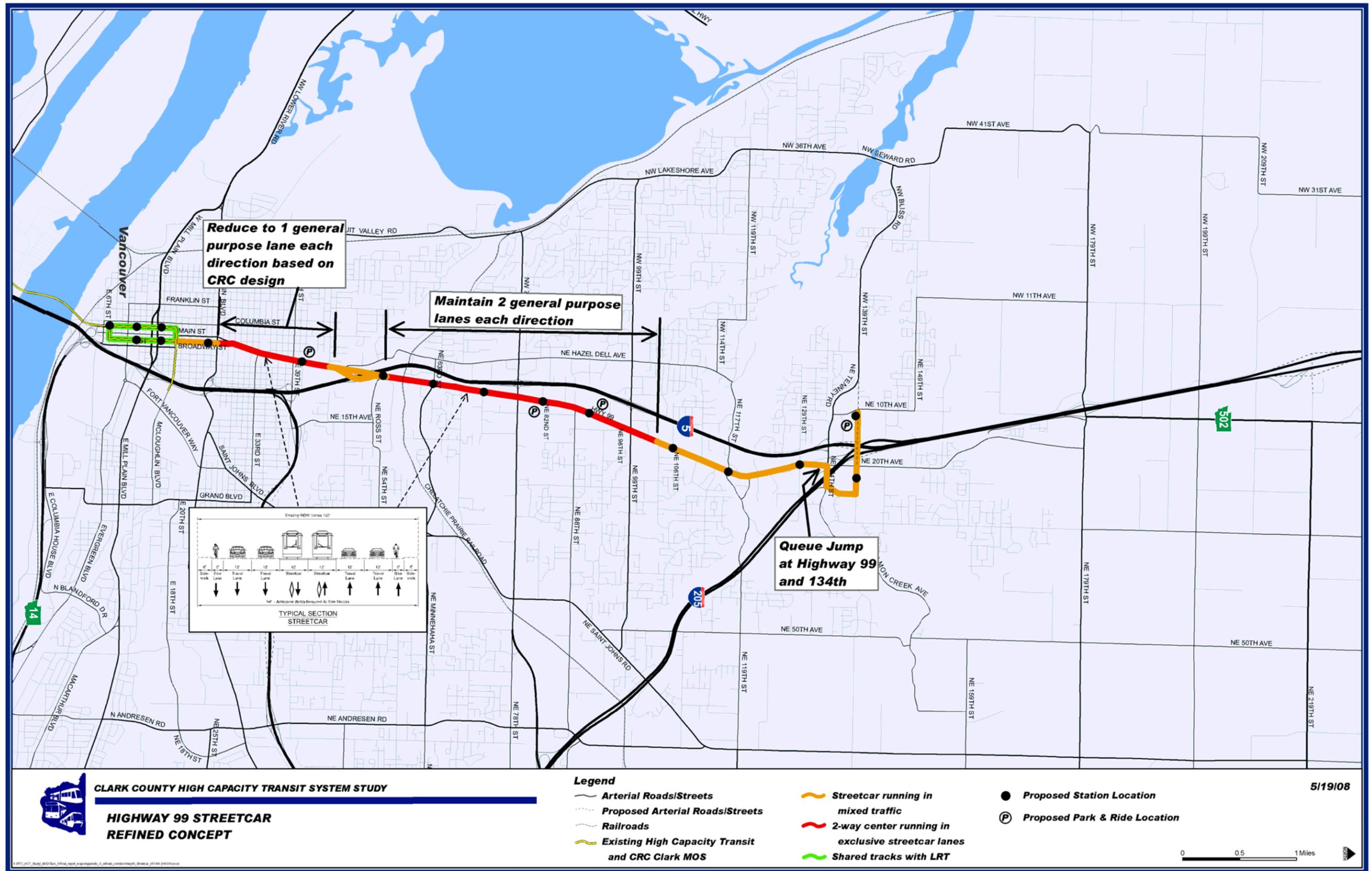
**Figure I-2
I-5/Hwy 99 Alignment**



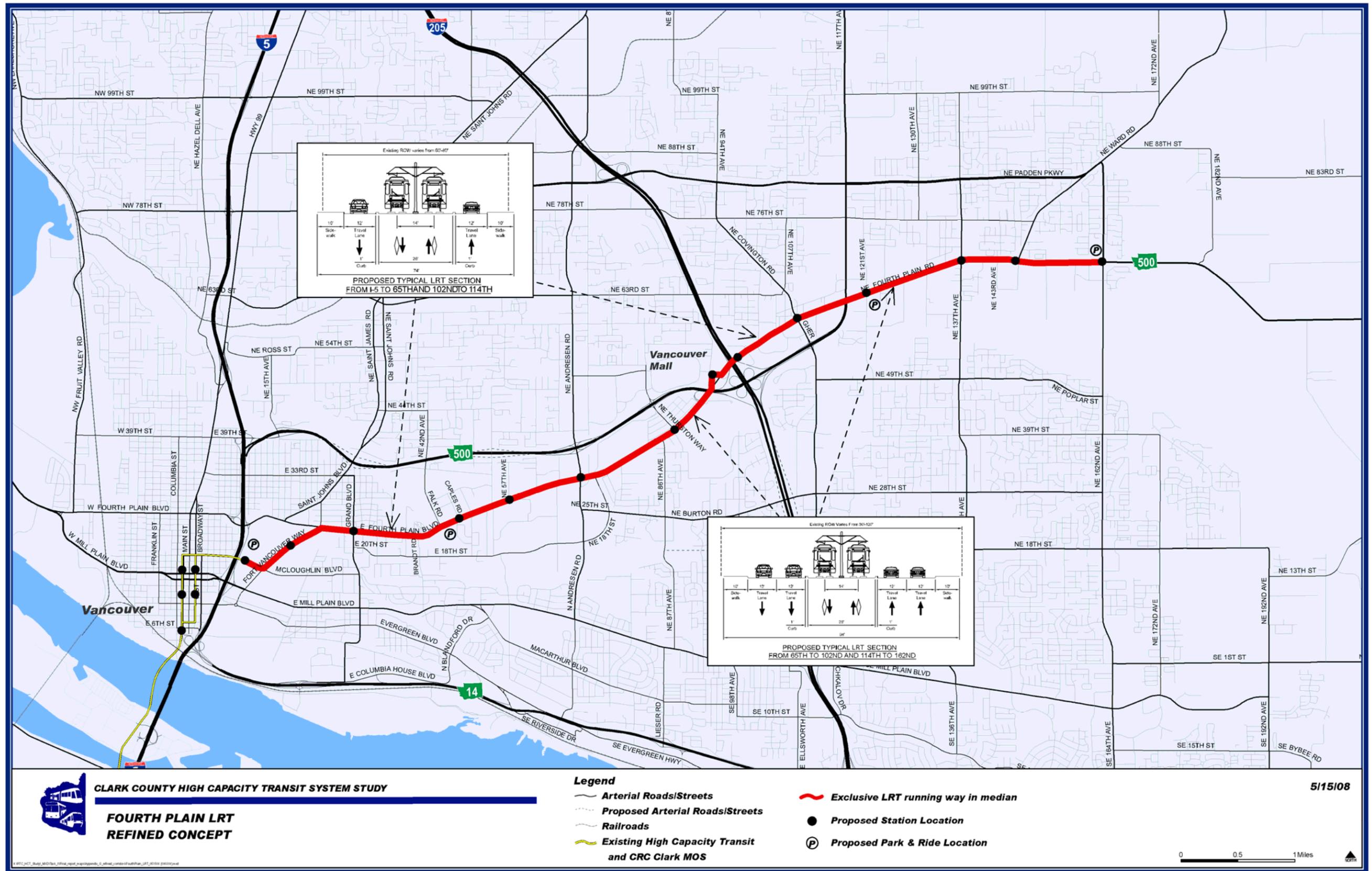
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Highway 99 Alignment**



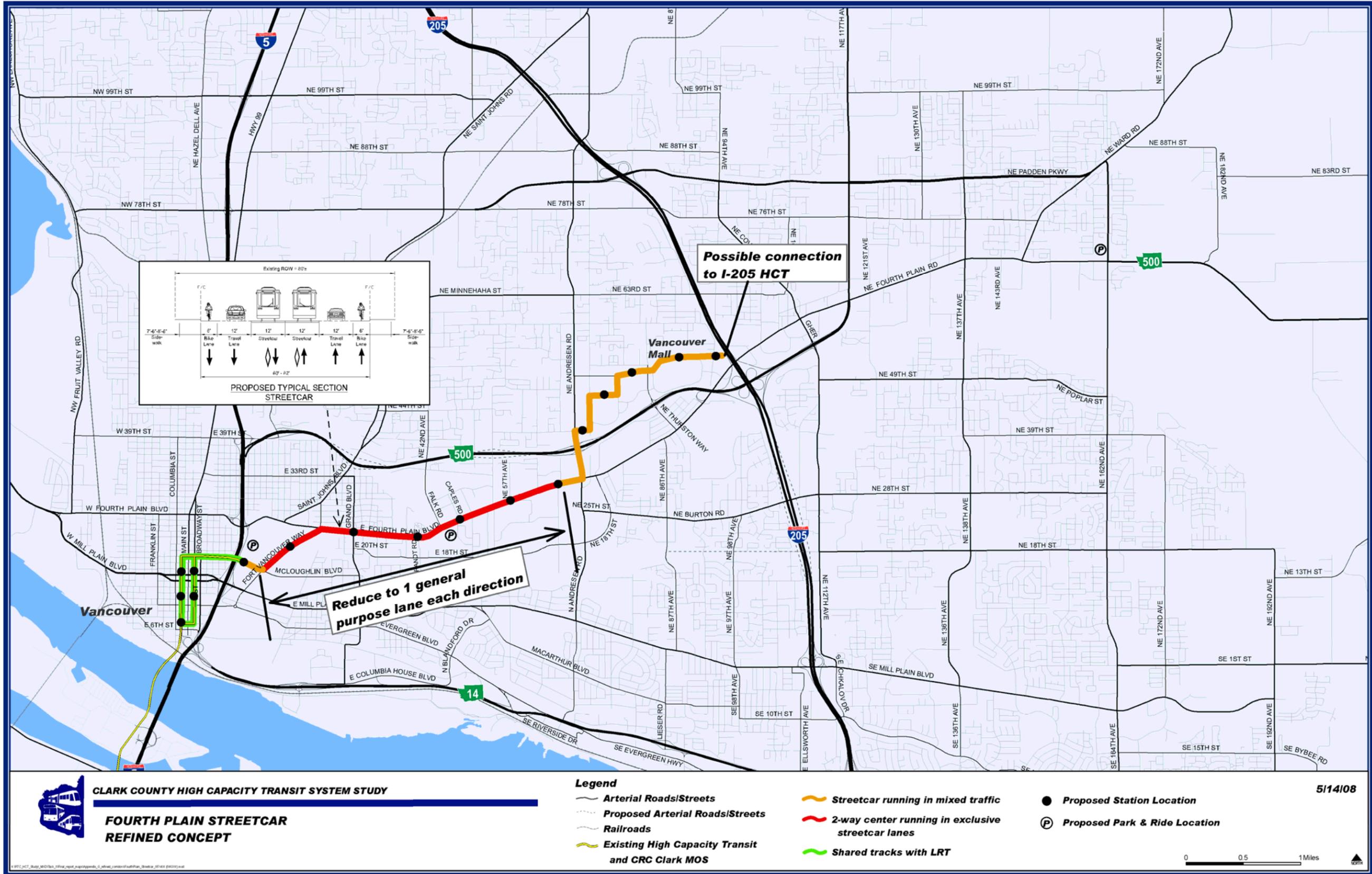
**Figure I-4
Highway 99 Alignment**



**Figure I-6
Fourth Plain Alignment**



**Figure I-7
Fourth Plain Alignment**



**Figure I-8
I-205 Alignment**

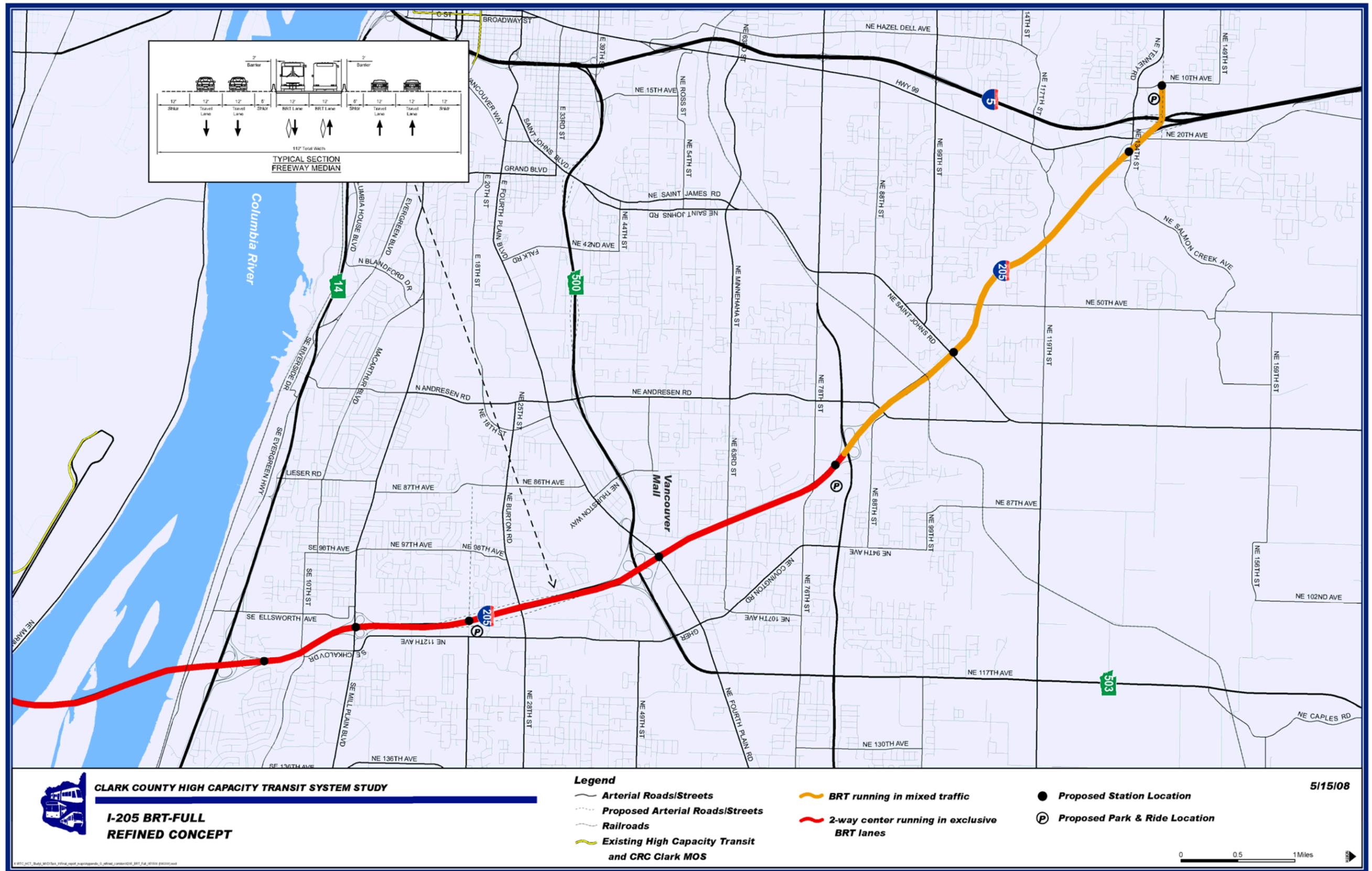
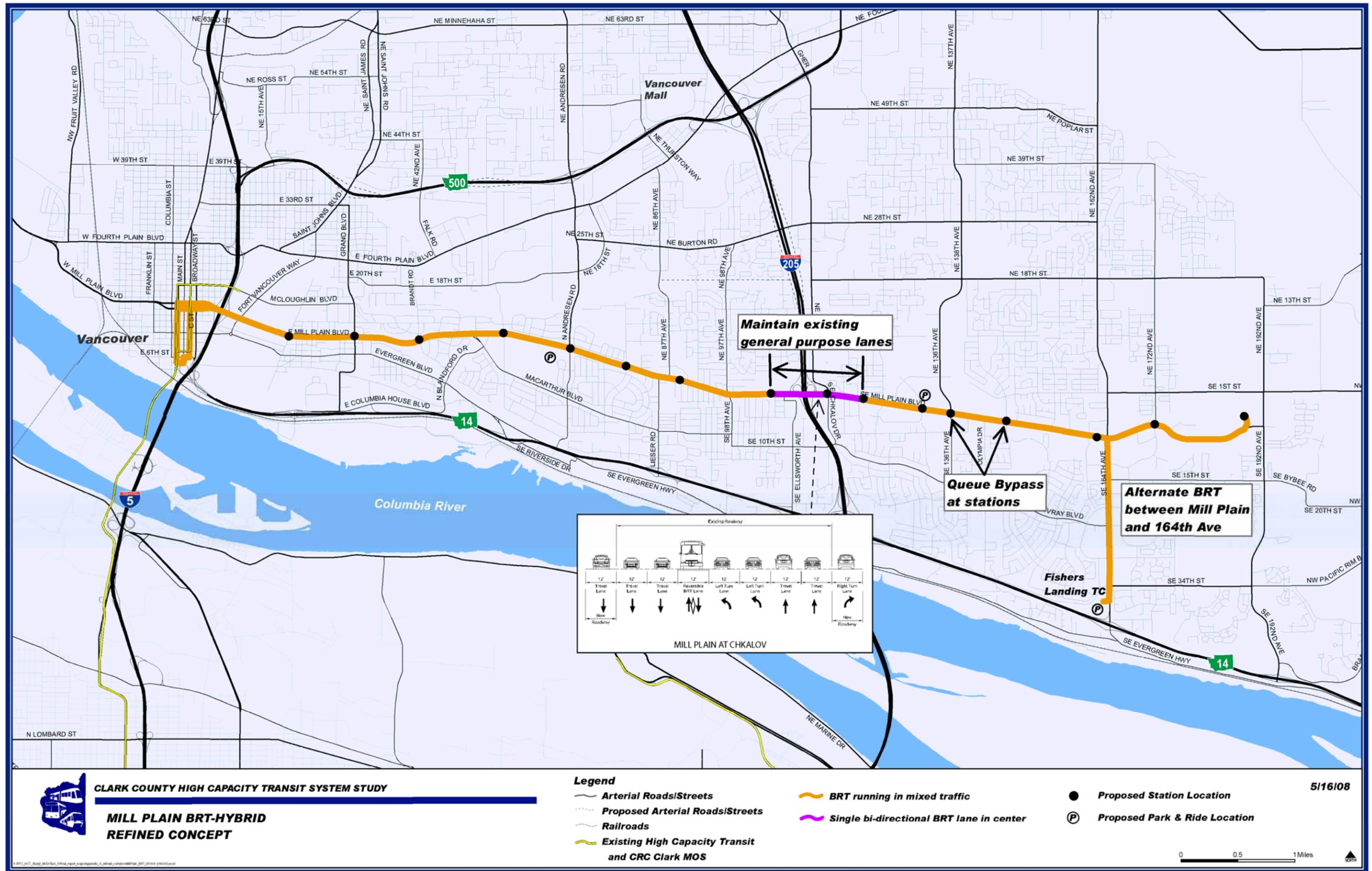


Figure I-10
Mill Plain Alignment

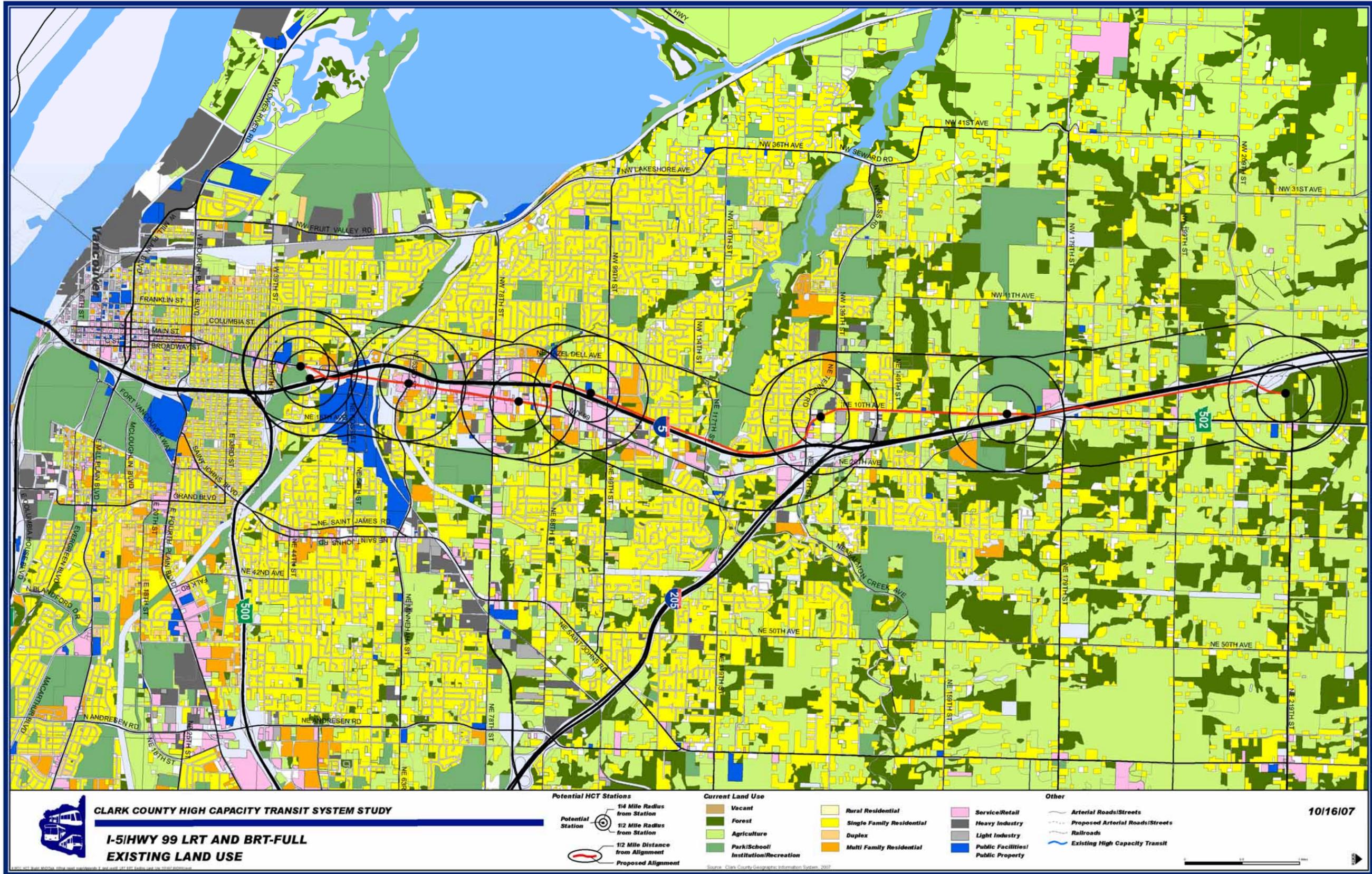




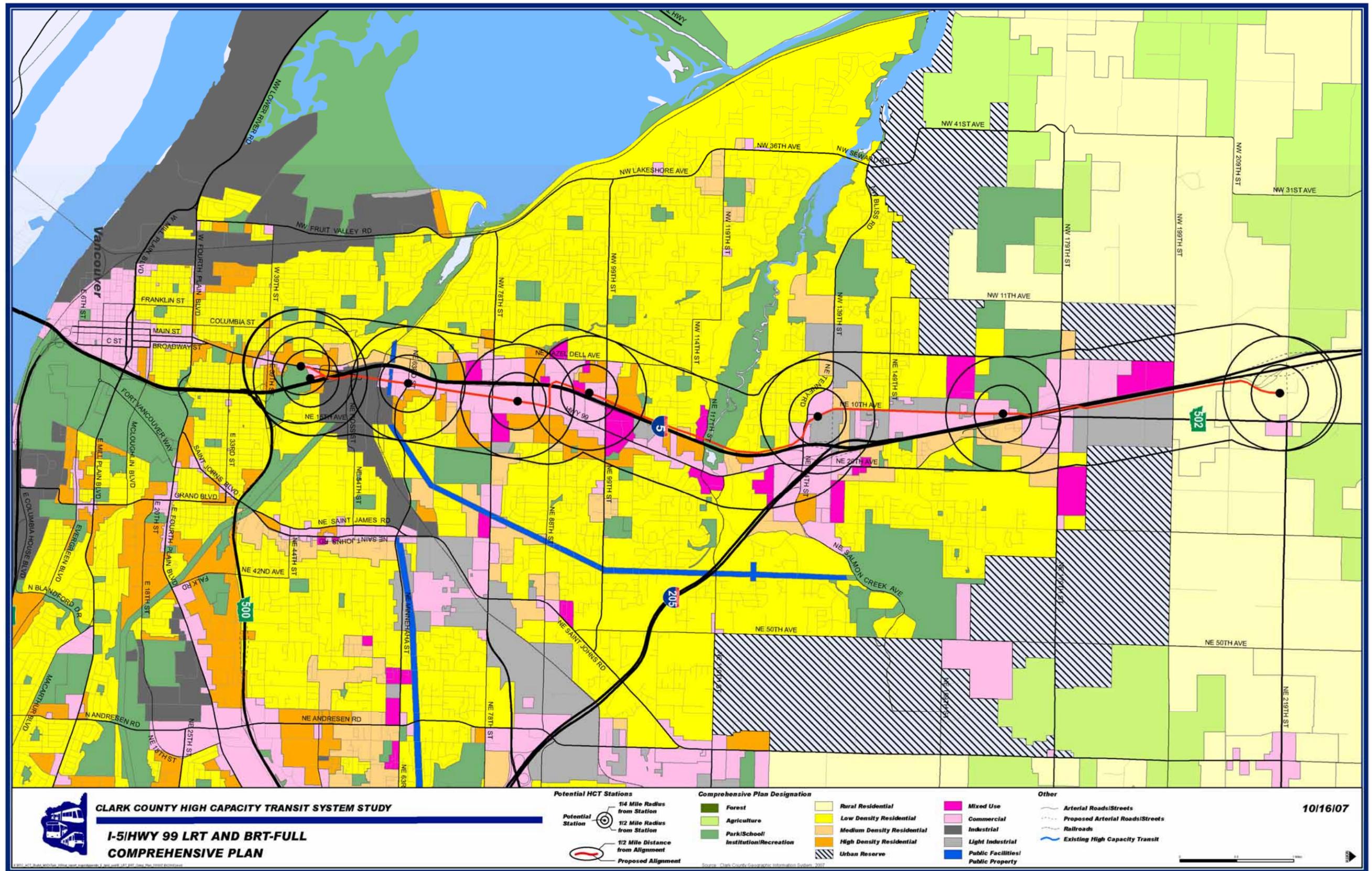
Appendix J

Land Use Maps

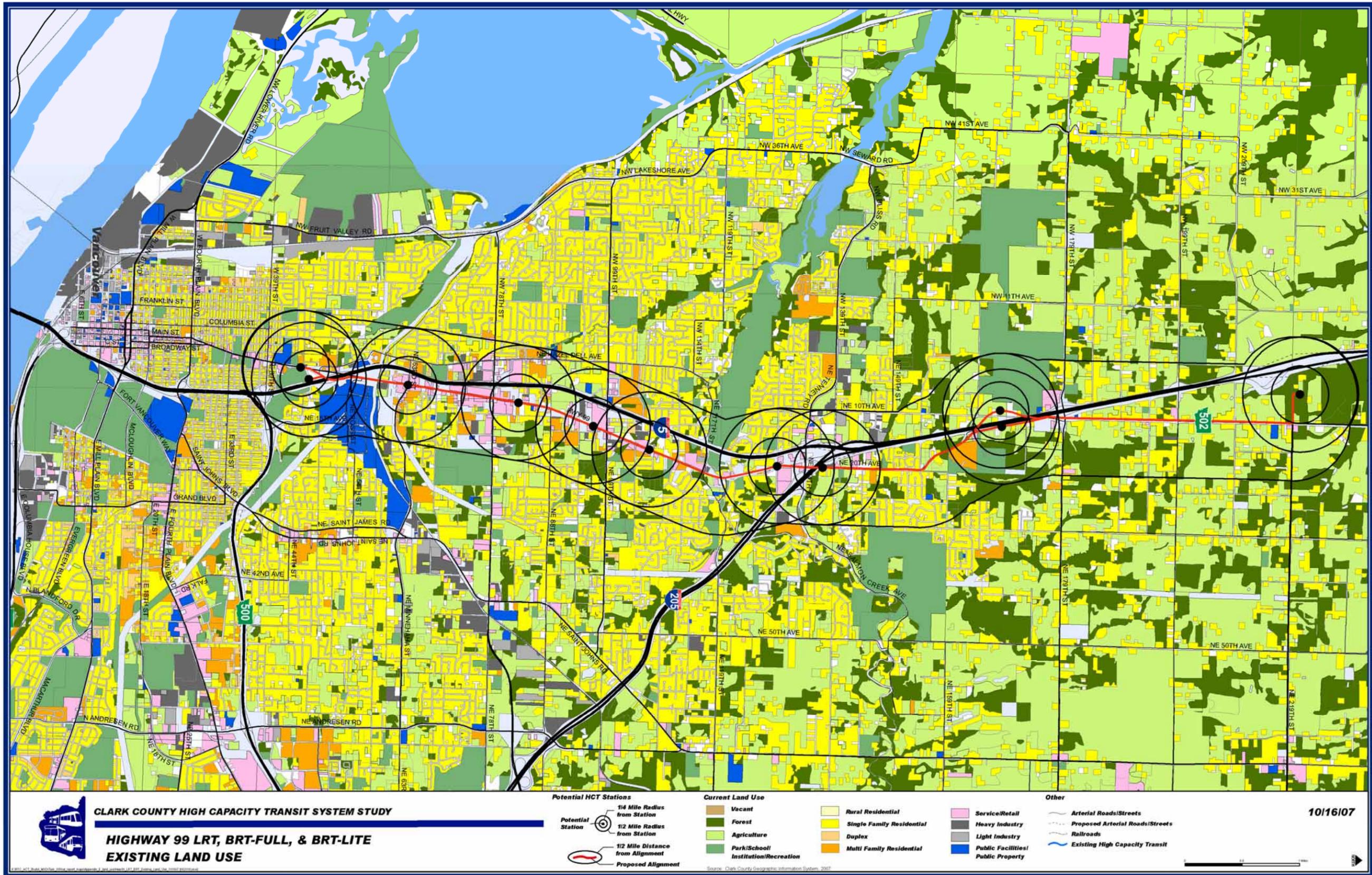
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I-5/Hwy 99 Alignment



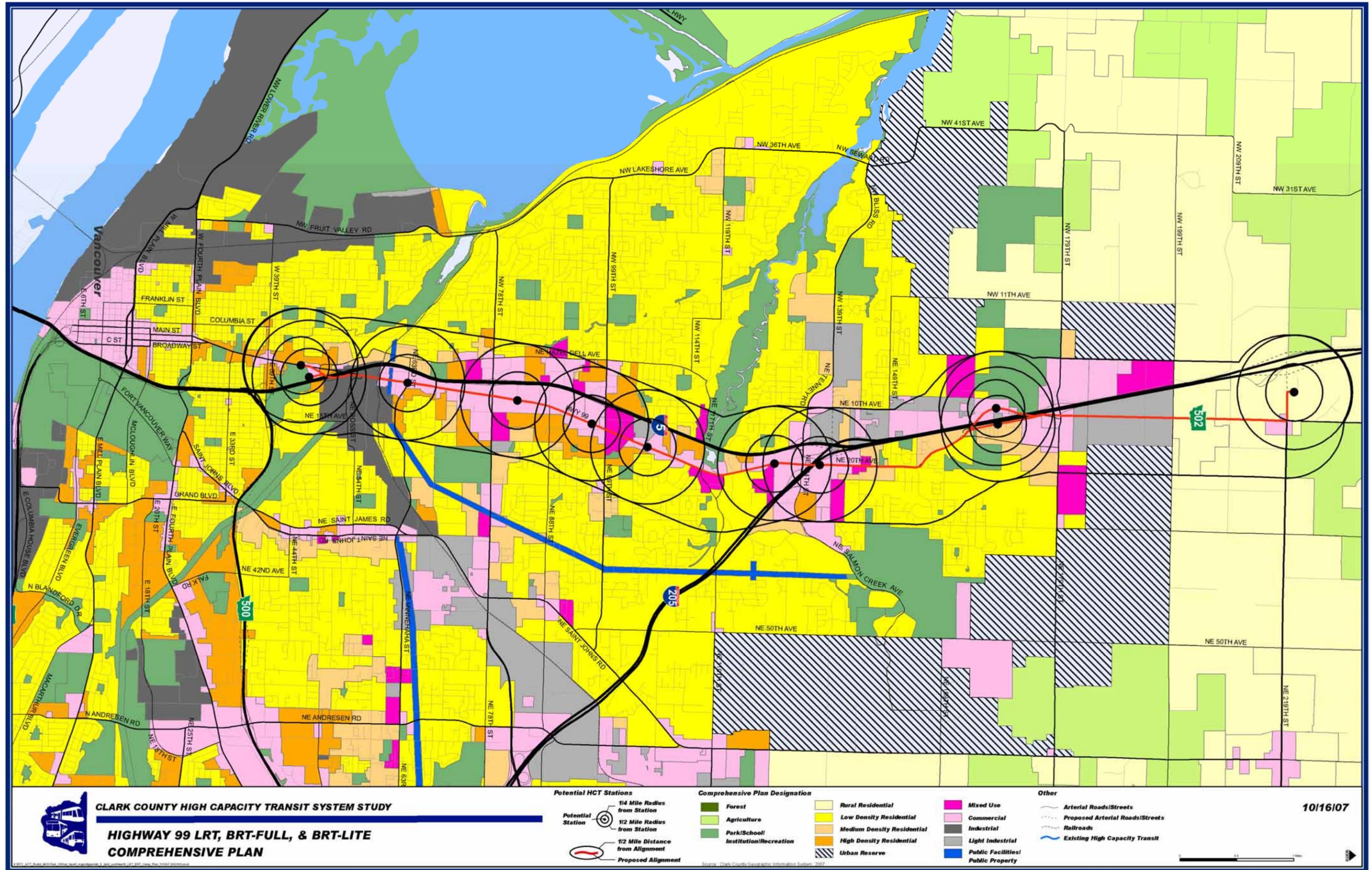
**Figure J-2
I-5/Hwy 99 Alignment**



**Figure J-3
Highway 99 Alignment**



**Figure J-4
Highway 99 Alignment**



**Figure J-5
SR-500 Alignment**

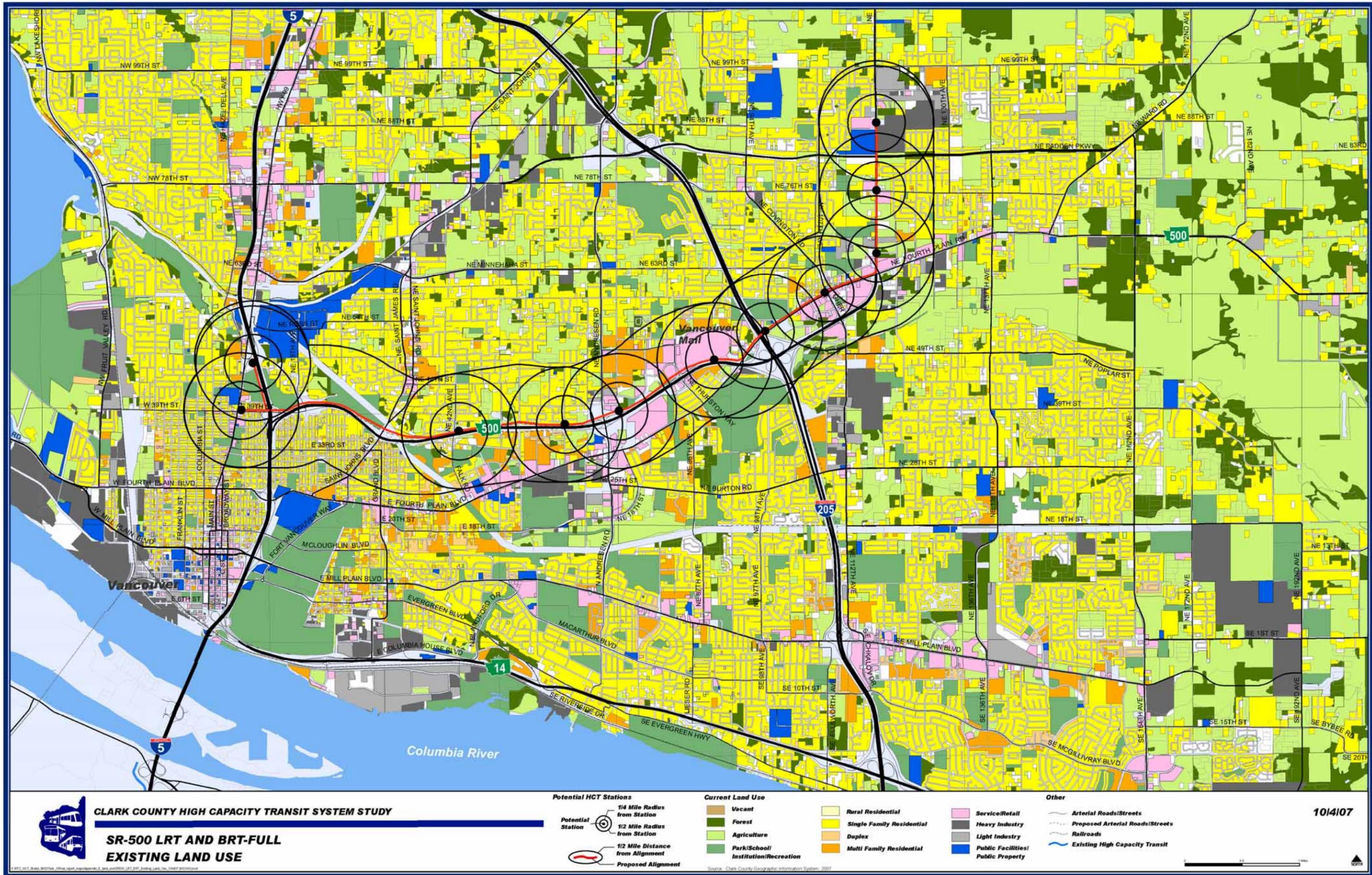
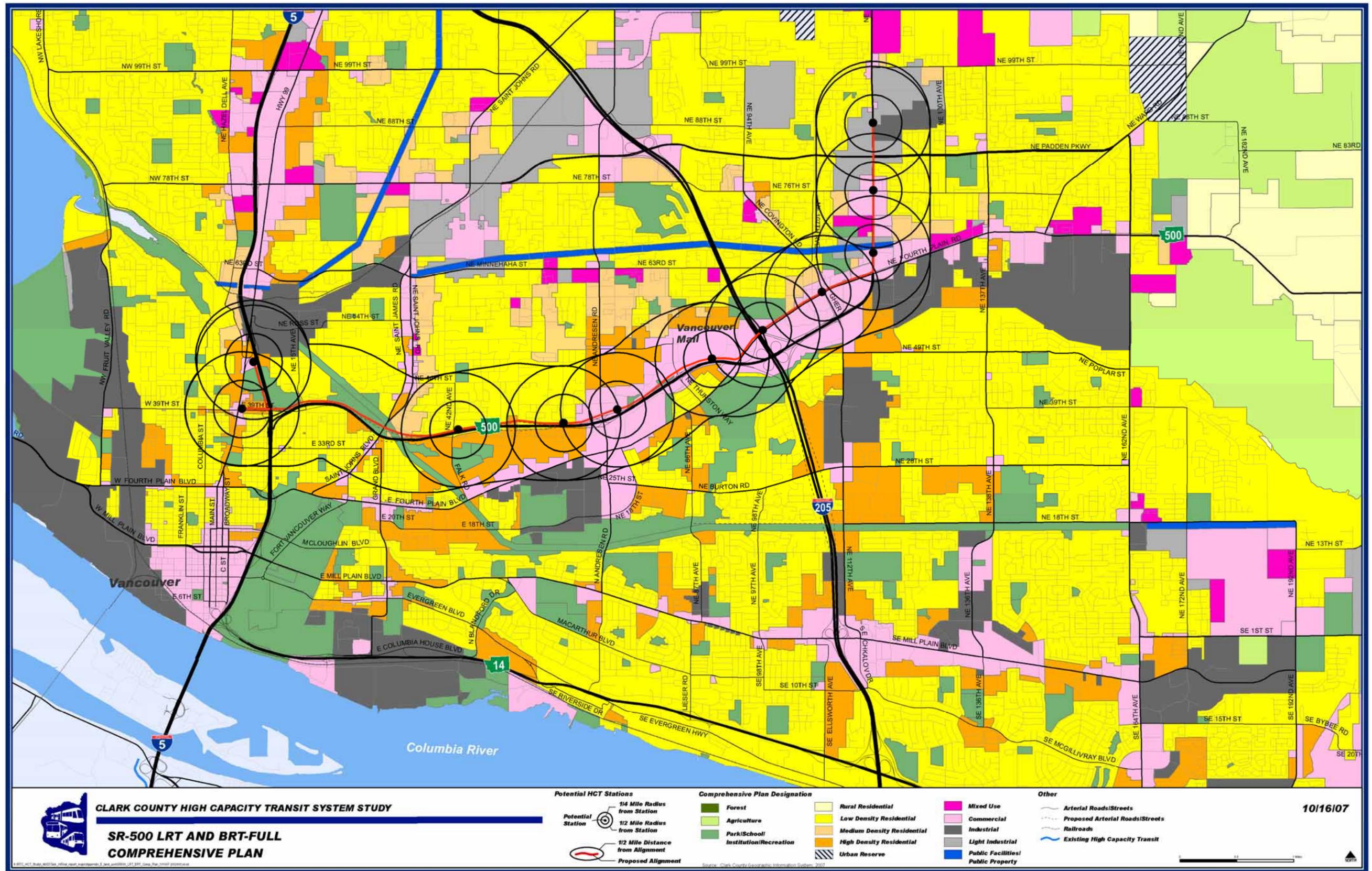
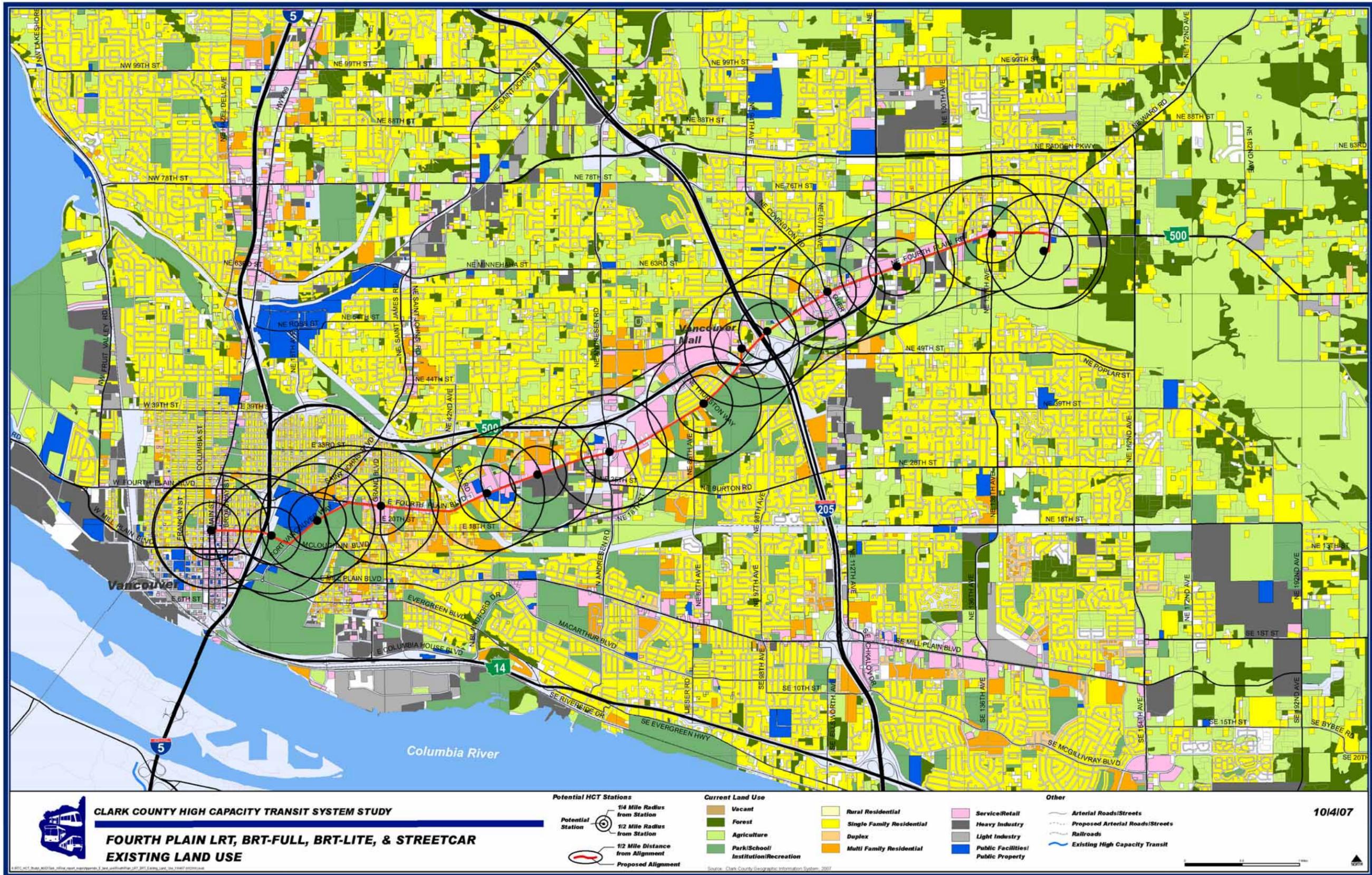


Figure J-6
SR-500 Alignment



**Figure J-7
Fourth Plain Alignment**



**Figure J-8
Fourth Plain Alignment**

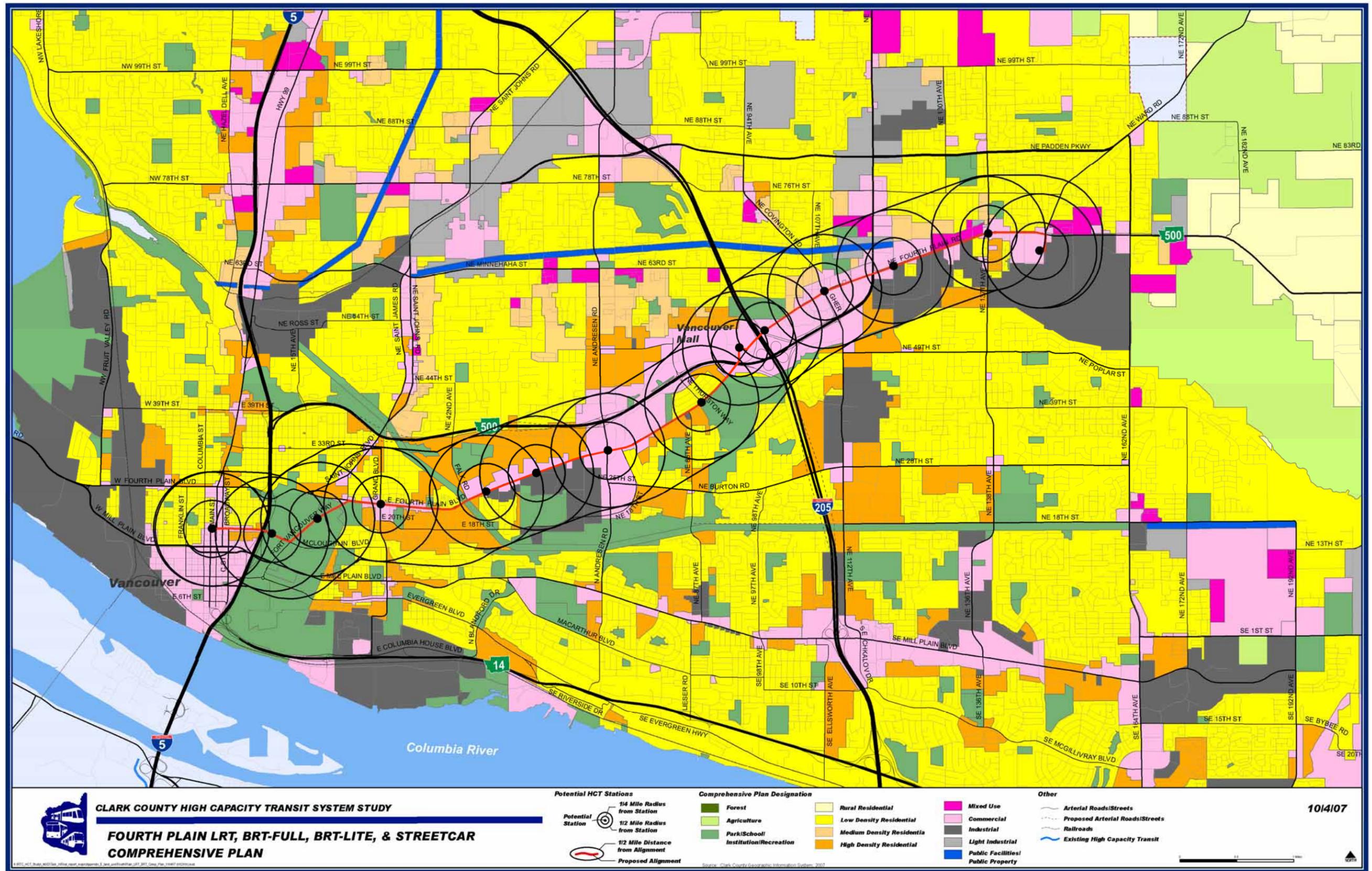


Figure J-9
I-205 Alignment

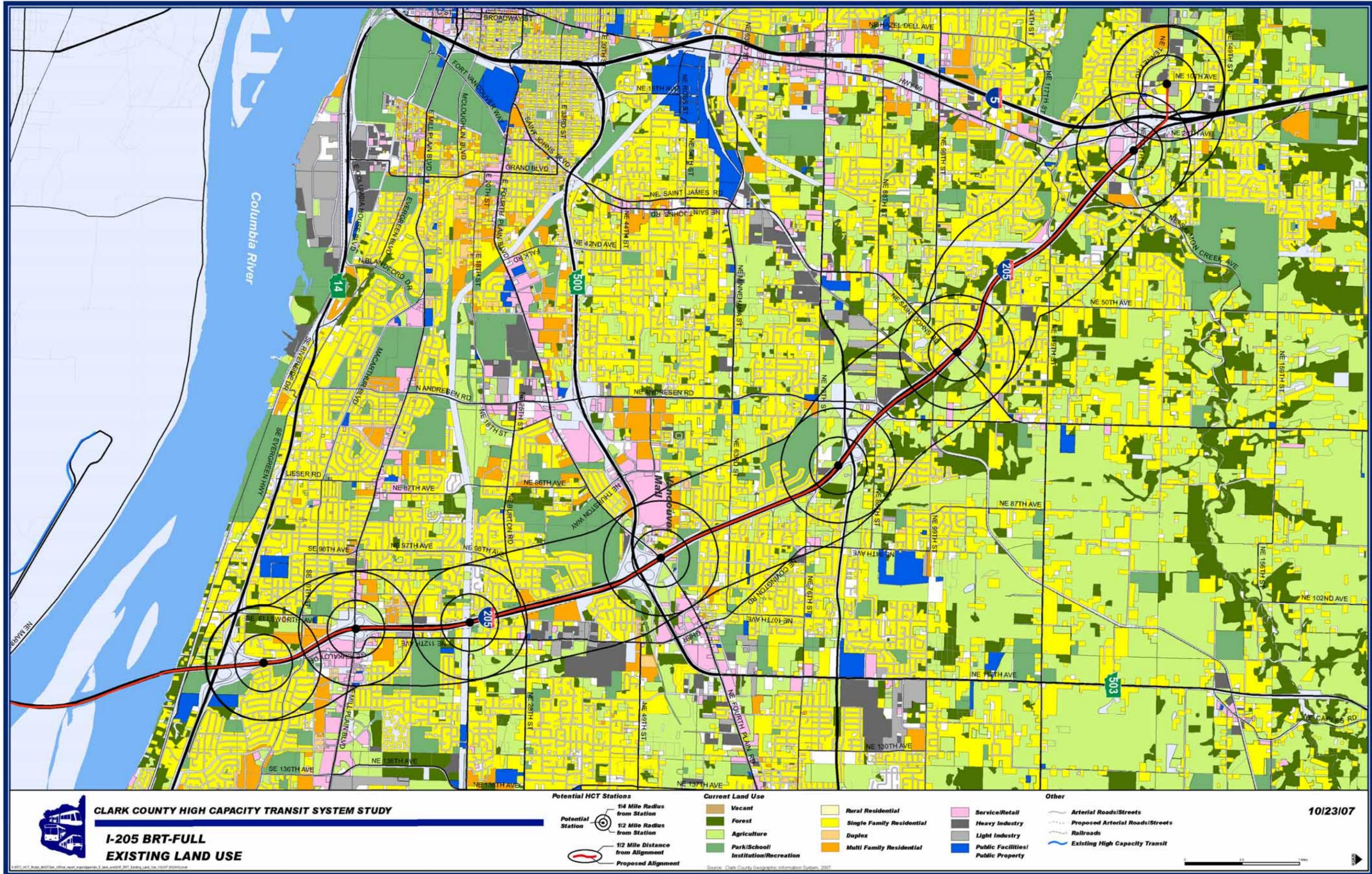


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I-205 Alignment

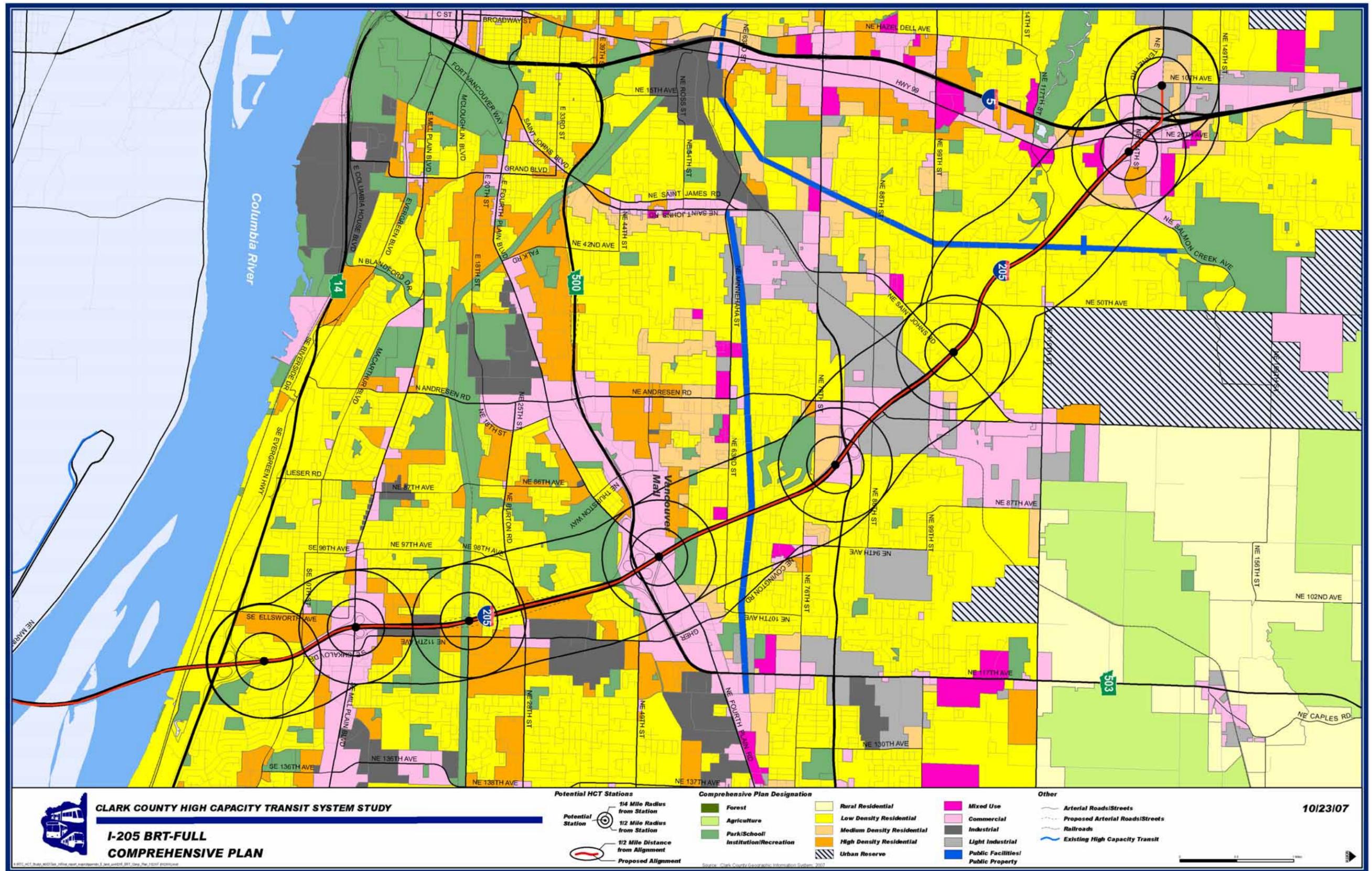


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I-205 Alignment

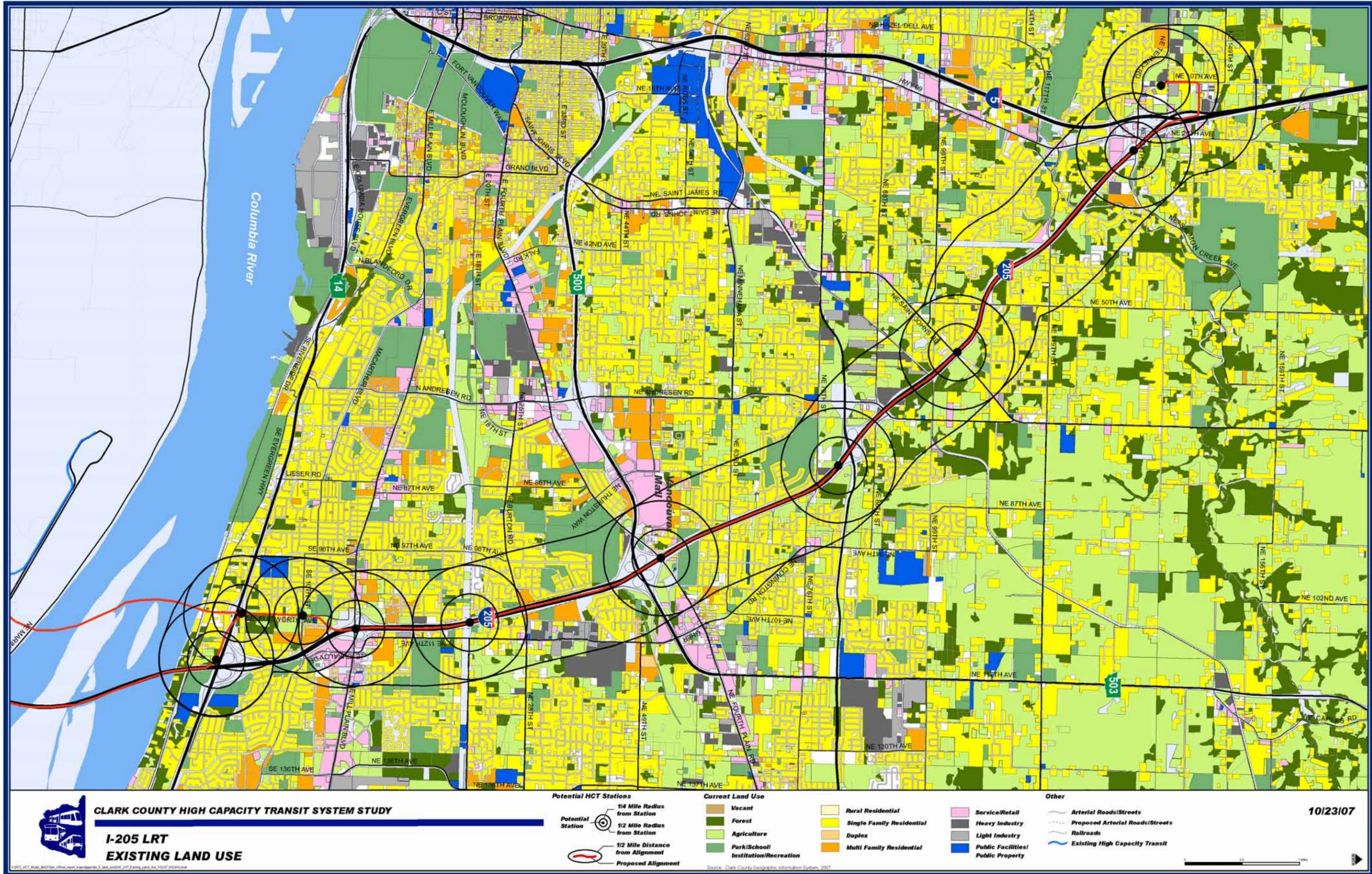


Figure J-12
I-205 Alignment

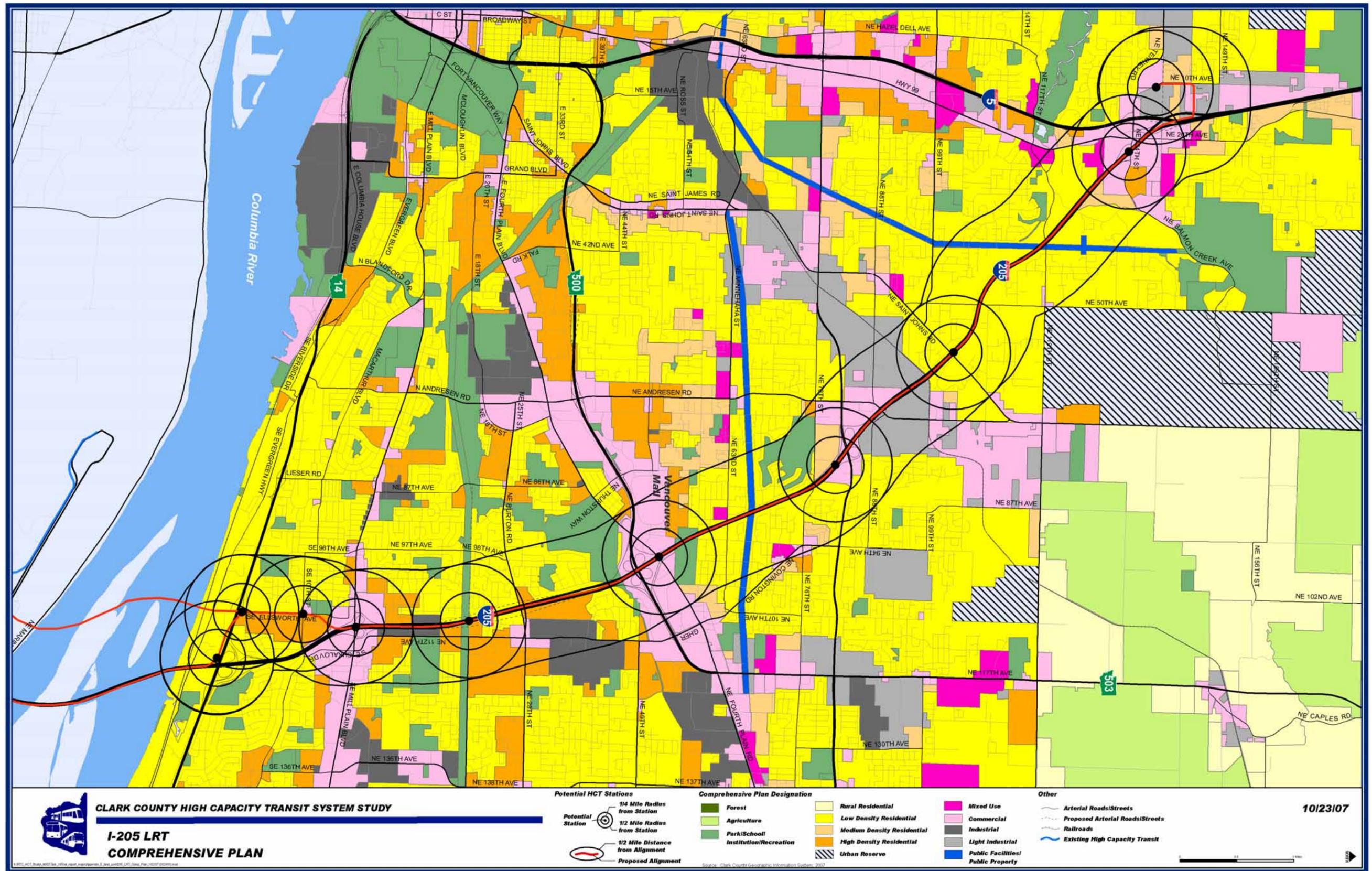


Figure J-13
SR-14 Alignment

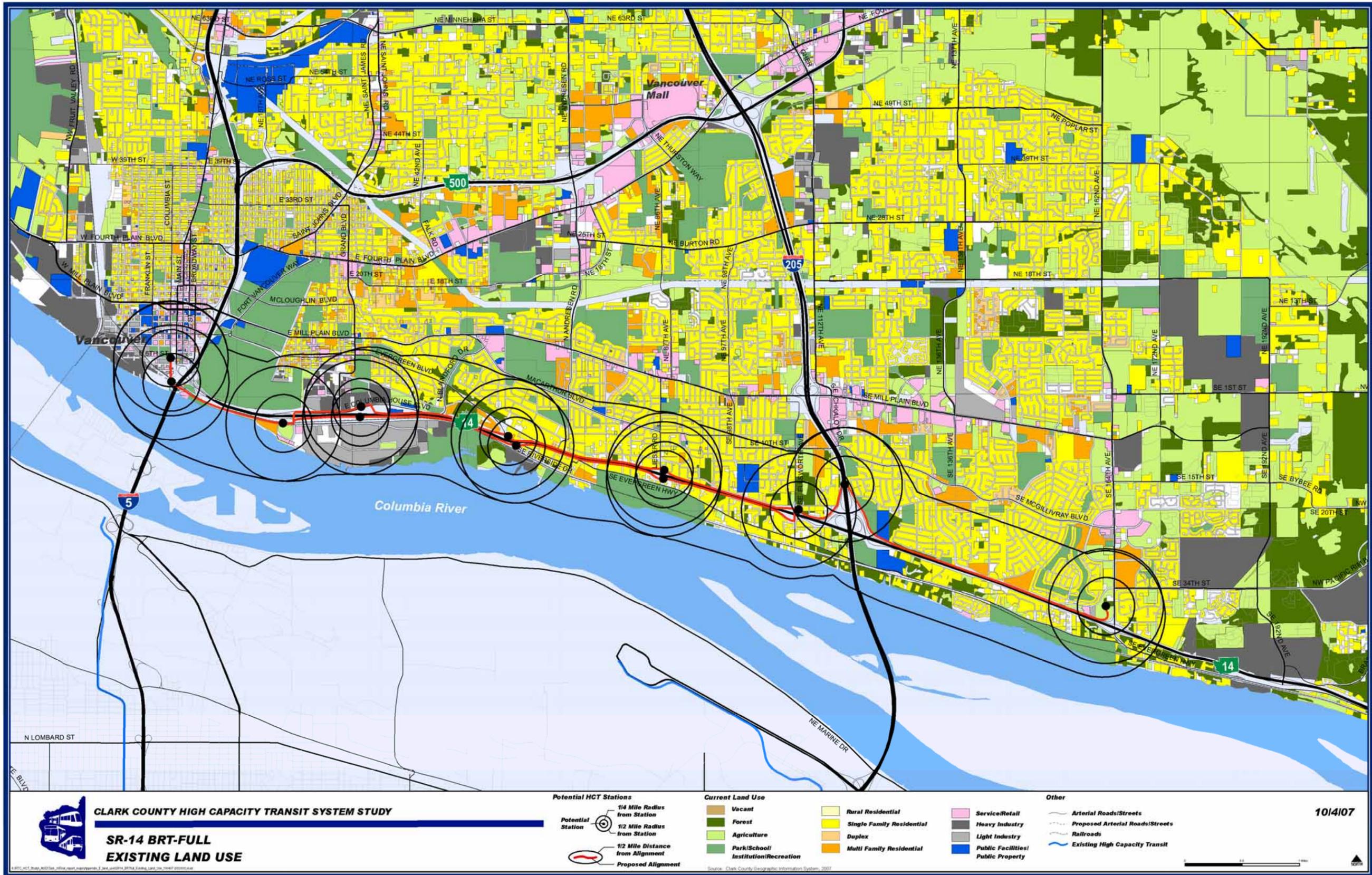


Figure J-14
SR-14 Alignment

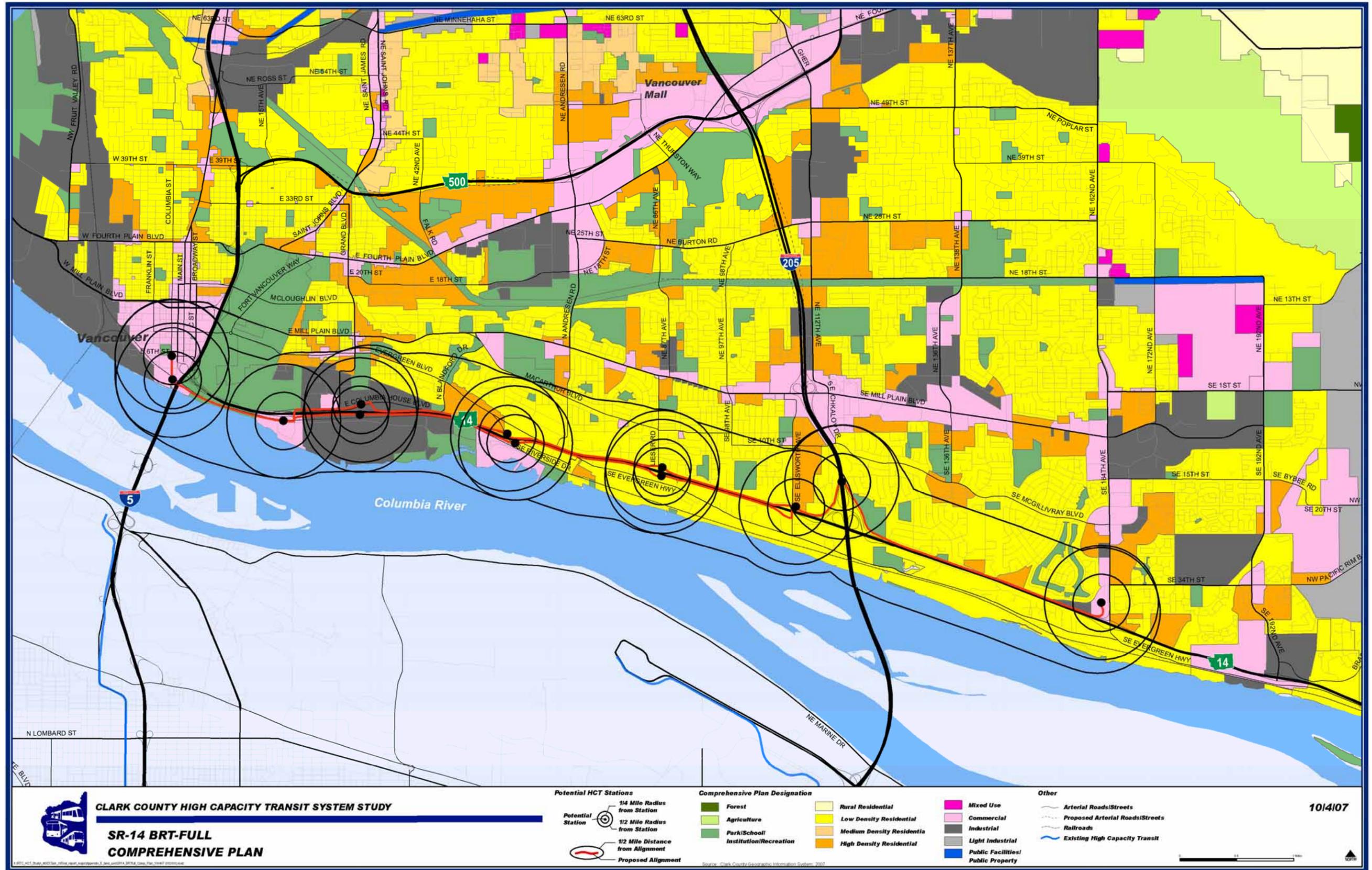


Figure J-15
Mill Plain Alignment

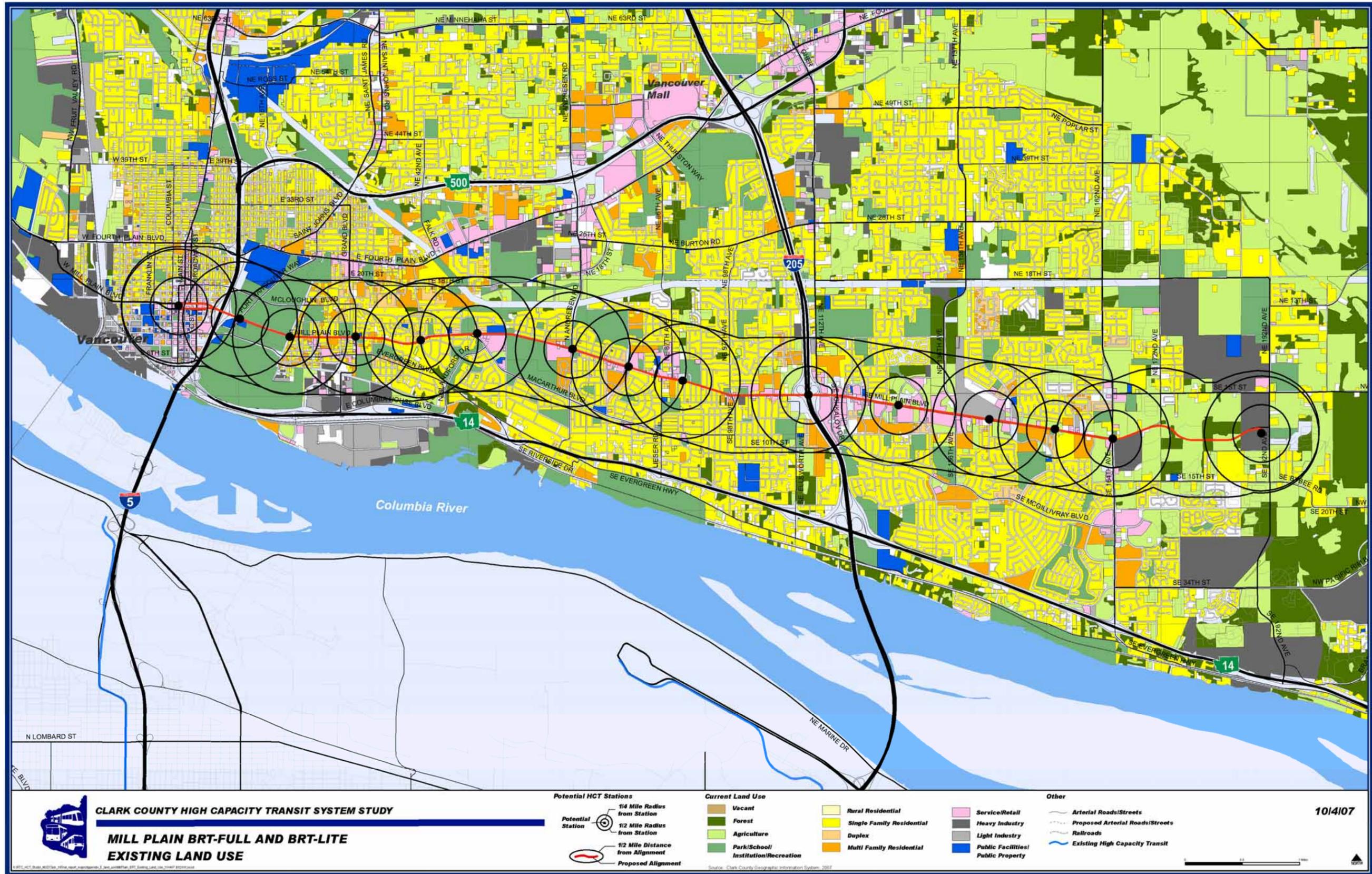


Figure J-16
Mill Plain Alignment

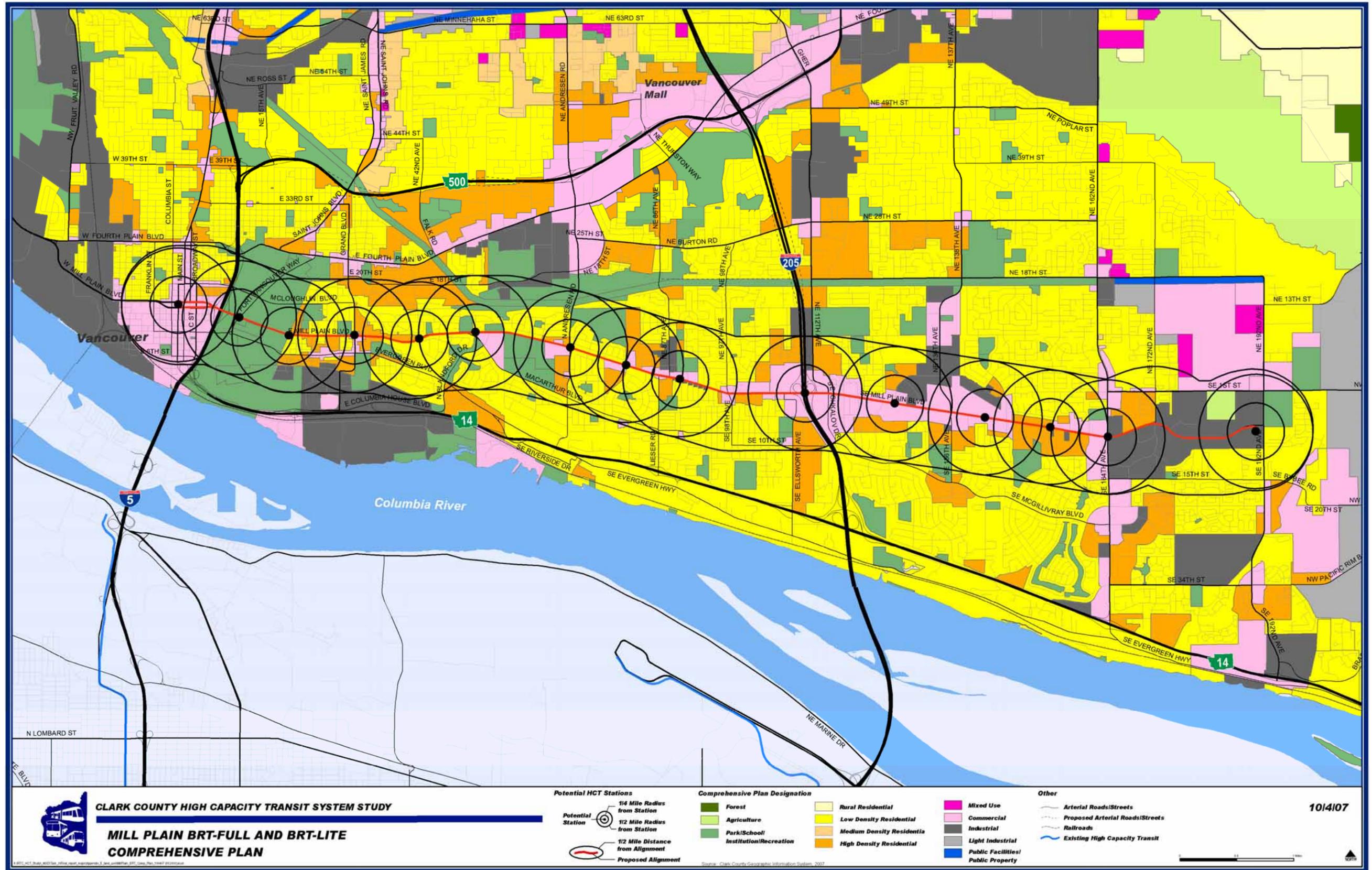


Figure J-17
Chelatchie Prairie Alignment

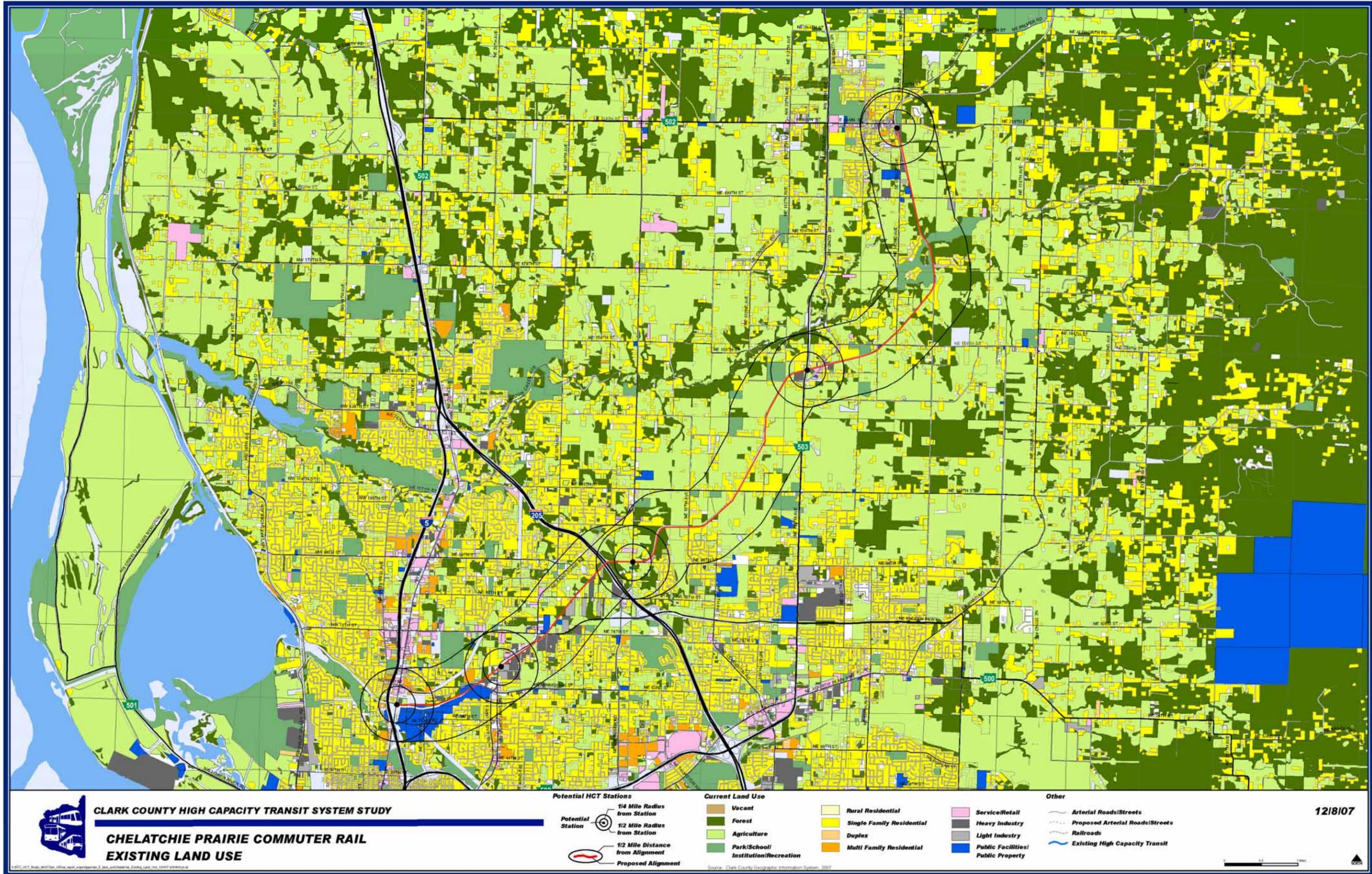


Figure J-18
Chelatchie Prairie Alignment

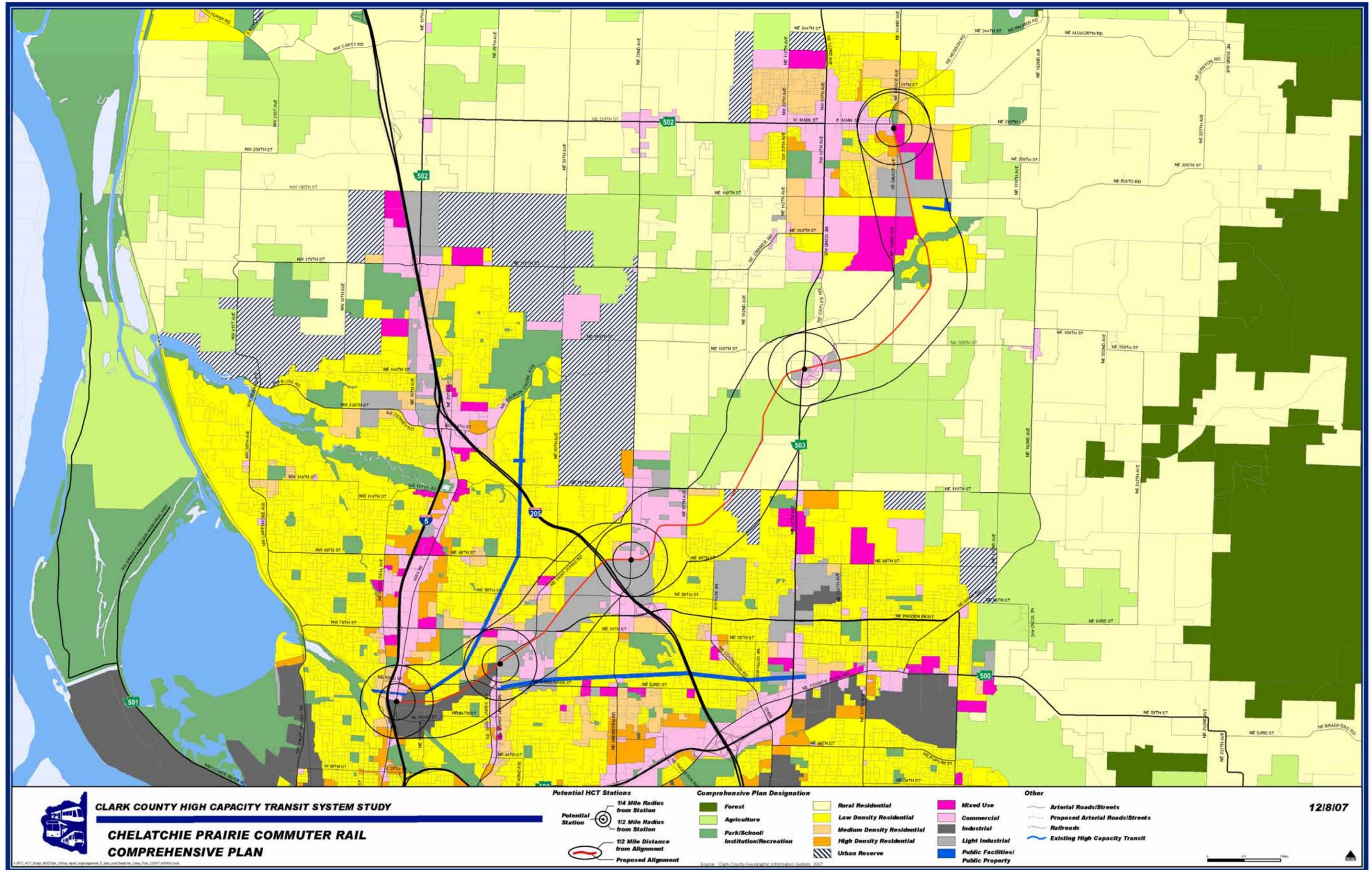


Figure J-19
Existing Land Use – Proposed System Plan Corridors

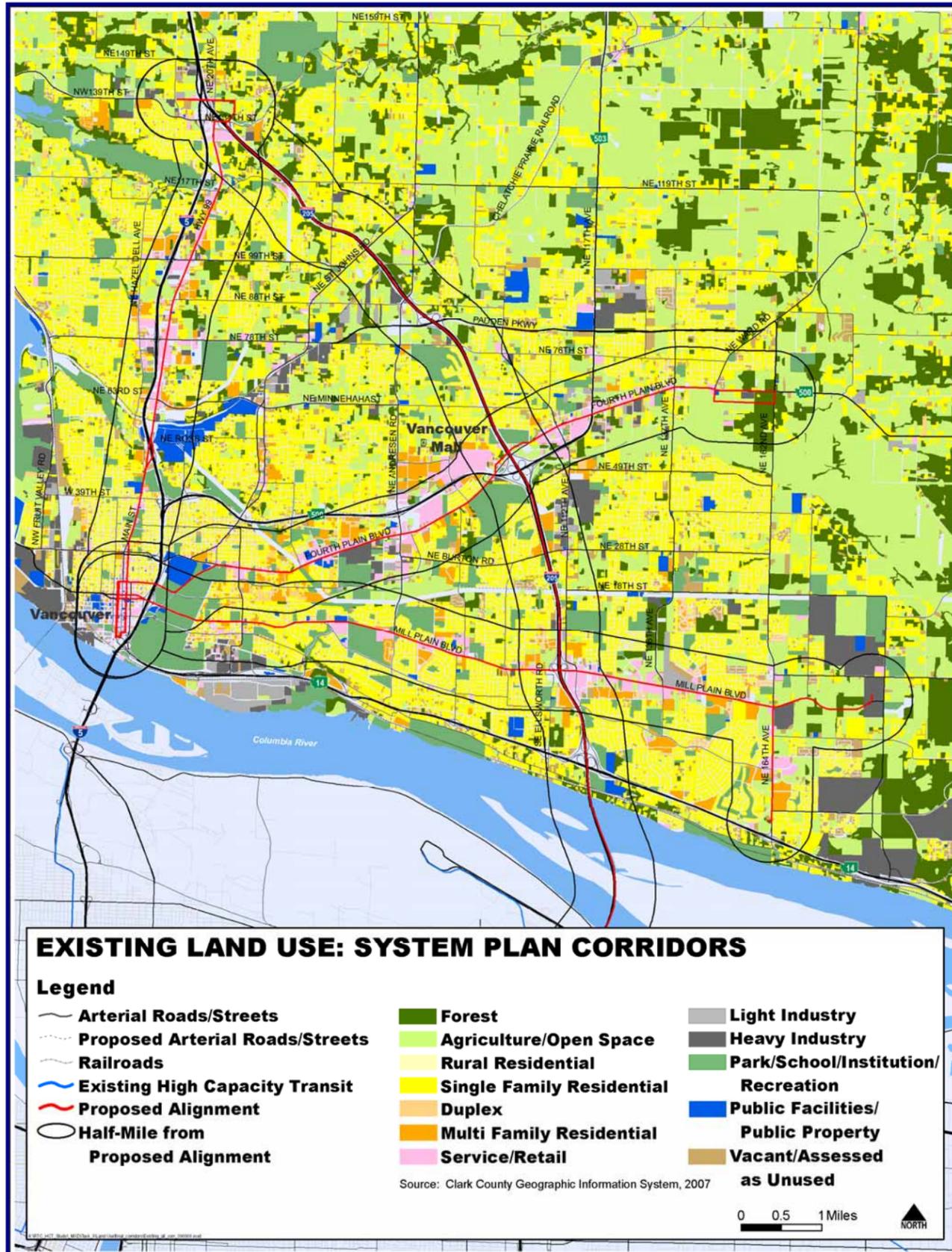
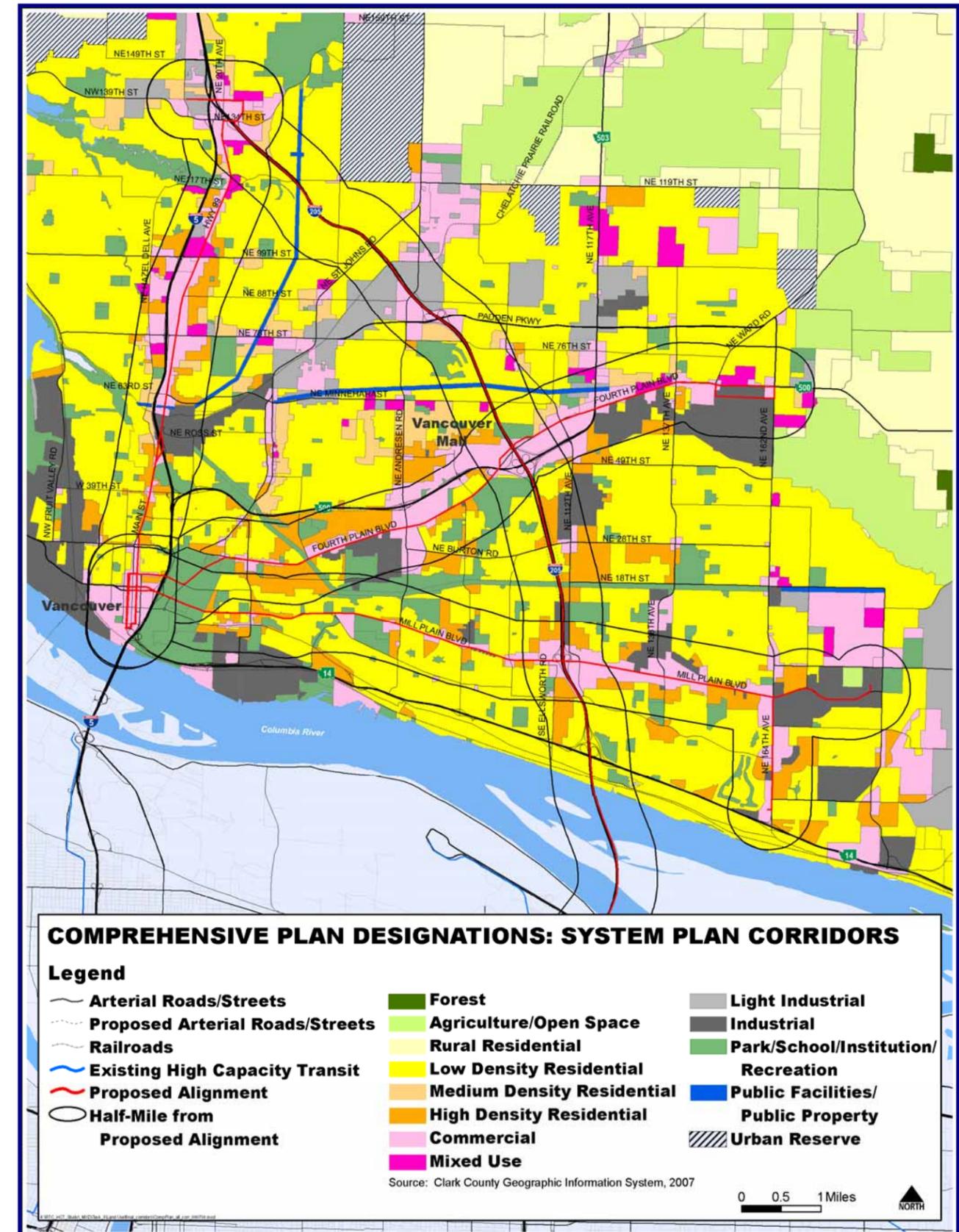


Figure J-20
Comprehensive Plan – Proposed System Plan Corridors





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