



MEETING SUMMARY

US 97 BAKER ROAD INTERCHANGE AREA MANAGEMENT PLAN (IAMP)

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING #3

OCTOBER 13, 2021; 1:00 PM – 3:00 PM

VIRTUAL

ATTENDEES

Technical Advisory Committee Members

Andrea Napoli (Bend MPO)

David Hirsch (ODOT)

David Warrick (ODOT)

Dejan Duditch (ODOT)

Jim Scholtes (ODOT)

Jenn Cline (ODOT)

Peter Russell (Deschutes County)

Rachel Zakem (Cascades East Transit)

Chris Cheng (ODOT)

Bob Stolle (ODOT)

Aaron Myton (ODOT)

David Abbas (City of Bend)

David Amiton (ODOT)

Project Team

Don Morehouse (ODOT), John Bosket (DKS Associates), Kayla Fleskes (DKS Associates), Andrew Johnson (HDR Inc)

INTRODUCTIONS/ AGENDA OVERVIEW/ PROJECT STATUS

- John Bosket and Andrew Johnson opened up the meeting and gave a brief overview of the project status, noting that the Community Advisory Committee (CAC) meeting would be following this Technical Advisory Committee (TAC) meeting.
- John noted that an online open house will occur before the next TAC meeting (November 1st-14th) with a virtual public meeting on November 3rd. The project team will be presenting a refined alternative at the next TAC meeting based on input today and input from the online open house and CAC.
- John asked the TAC to provide input on how information should be presented at the online open house and what the preferred concept may be. Some of the TAC members saw the information in an earlier meeting with other ODOT staff.

Concept Development Process

- Andrew noted that the evaluation began with the goals and objectives. The goals and objectives led to the development of the eight preliminary concepts which were presented at the four-hour concept evaluation workshop held at the end of June with the TAC. The workshop narrowed down the concepts to three alternatives for refinement.
- John noted that “Alternative 6” was advanced at the concept evaluation workshop. However, during the refinement process the project team identified concerns with Alternative 6, particularly the heavy weave movement between the ramp terminals. Alternative 6 also did not fix the access conflicts with the US 97 southbound on-ramp and Baker Court. To refine Alternative 6 and address some of the concerns, the project team decided Alternative 1 was a better performing alternative without the added cost of the flyover ramp included in Alternative 6.
 - Dave Warrick asked if ODOT access management was involved in the earlier meeting with ODOT staff. John said he did not believe so, but there was an email exchange with David Knitowski and it was determined that from a Division 51 administrative rules standpoint, there is not a fatal flaw with realigning the ramp terminal with Baker Court. However, realigning the ramp does move the ramp terminal closer to the railroad.

Refined Concepts – Active Transportation Improvements

- Andrew provided an overview of the active transportation improvements that are included with any of the refined concepts. This would include a multiuse path on the south side connecting to the US 97 Lava Butte Multi-use path and extending towards the Deschutes River Woods neighborhood. An optional path is shown on the north side going under US 97.
- Theresa Conley asked if the improvements could include a potential bus stop on the west side, as Rachel Zakem had shared? The west side is the better transit stop location and potential stops on both sides will support bi-directional transit routes.
 - John noted that conversations with the transit stop at the store are on-going. Rachel noted that the store has agreed to a bus stop south of the store that would not interfere with the parking lot, with the option for benches and a shelter. John asked when that bus stop may be moved to the store and Rachel said it is unclear at the moment. CET is waiting to see the outcome of the IAMP but for now, the transit stop can be shown on the west side of US 97 on our project maps. Don noted that the store owners are part of the CAC. Jenn Cline asked if there will be wayfinding signs so riders know it’s located off the Baker Road network. We haven’t addressed that at this level of planning but that sounds like a reasonable assumption.
- Peter Russell noted that the multi-use path on the east side of US 97 has challenges based on County zoning. While the path is conceptual at this point, that nuance may be lost on most people looking at the maps. Jenn Cline noted that the west side trail option is noted in the document but not on the figures. John asked the TAC how it should be shown on maps knowing that most folks likely won’t read the document and these maps will be shown in an open house. Peter Russell said his preference would be showing alignments on both sides of US 97. David Amiton agreed and noted that ODOT’s preference would be the east side alignment and going

through the land use process, but that will not happen by the time the IAMP is completed. The IAMP can be amended accordingly after the land use process.

- Andrew noted that there can be some variation in the cross-section design between the curbs between alternative but with the active transportation improvements generally assume a 15-foot multi-use path on the south side with a standard sidewalk and buffered bicycle lane on the north side. John noted that traffic signals generally need more turn lanes across the bridge while the roundabouts need fewer lanes.
 - David Amiton asked what is the benefit of a buffered westbound bike lane instead of a protected bike lane? Andrew noted the idea was that the south side provides an all ages and abilities facility while the north side bike lane is for more comfortable/fearless riders who don't want to travel out of direction. David noted his preference would be to provide the highest quality facilities such as a raised or protected bicycle lane. If the bike lane is raised to the sidewalk would it be wide enough for a standard plow, would it be easier to maintain than a protected bicycle lane? Andrew asked TAC members if that would be the preference. Andrea said yes if it means better maintenance. Theresa preferred a protected not raised facility. Jim Scholtes note that raising it would still be difficult to plow and the path would be beaten up by the plows. Peter prefers protected bike lane over raised bike lane since City of Bend implemented a raised bicycle lane on Reed Market and a lot of cyclists did not like it.
 - Peter Russell asked can the travel lanes can be reduced to 11-feet wide. Jenn Cline noted ODOT cross sectional standards will need to be followed and the BUD does not apply for this project. Jenn requested that we call out design exceptions where needed. Andrew noted that from a cost/efficiency perspective it is easier to assume wider facilities since we are already assuming the bridge will require widening.
 - David Abbas asked about the 1 ft buffer at bridge rail on the multi-use path side but not one on the standard sidewalk side? A 1ft buffer will be added to the north side.
- John noted that all the recommended alternatives include roundabouts but are subject to the stakeholder engagement process for approval outlined in ODOT Highway Directive DES 02. Therefore, intersection operations were analyzed for both roundabouts and traffic signals at the ramp terminals. He noted that all costs shown in the presentation assume roundabouts.
 - Jenn Cline asked if the costs include preliminary engineering or are they just construction costs? Andrew noted that the cost estimates do include preliminary engineering, construction engineering and construction costs. The cost estimates do not include right-of-way or utility relocation, which are partially captured under 50 percent contingency. Currently the cost estimates are useful for comparing the order of magnitude between alternatives but are likely on the low end. Estimates would need to be refined to reflect the reality that bid prices have been substantially increasing this past year.
 - Jenn Cline asked David Amiton if the preference would be to show an escalated cost estimate? David would prefer to show it in adoption year dollars. John noted that as long as we are clear about what the assumptions are, in the future during programming the costs can be appropriately adjusted.
- Peter Russell noted that the County finished a paving project on Rickard Rd, which may increase the amount of truck traffic near the interchange. Andrew noted this is consistent with what we have heard from the CAC about the need to accommodate freight using the interchange.

Refined Concept Evaluation – Cinder Butte Road Intersection

- John described the four options at Cinder Butte Road.
 - One would be the low-cost, straightforward solution of shifting the intersection 25-50 feet to the west, adding eastbound/westbound left turn lanes with an optional northbound right turn lane and keep it as two-way stop control. This is included in multiple alternatives
 - The second would be installing a traffic signal, which can provide an enhanced crossing on the west side of the interchange, but it would likely not meet signal warrants. This is included in one alternative.
 - The third would be a roundabout, which was removed from further consideration due to the proximity to the railroad and the amount of truck traffic on Cinder Butte Road, which would necessitate a larger roundabout.
 - The fourth option would be realigning Baker Road, which was removed from further consideration due to the operational impacts to the eastbound stop-controlled movement.
- David Hirsch noted that his biggest concern is making sure that vehicles aren't stopping on the tracks and blocking the railroad crossing. Andrew noted this would not be consistent with our safety goal.
- Peter Russell asked if there was any thoughts on closing Cinder Butte Road. John noted that Cinder Butte is designated as a collector road and has a quarry at the end so traffic would have to reroute to Apache Road (a local road). Closure would be a question for the County. John noted that it would create a long cul-de-sac and would raise concerns around emergency vehicle access and evacuation potential. Dave Warrick said it is not irrational to consider but decision makers might have some concerns with it. John noted that Cinder Butte could be converted to right-in, right-out only to address concerns about queuing back to the railroad but it would still have some of the policy and connectivity issues that would come with a full closure. He will bring this question to the CAC.
- Jenn Cline noted that there have been ideas of another interchange south of Baker Road connecting to Cheyenne Road/Navajo Road/High Desert Museum when there is an alternative access to US 97. Dave Warrick noted that we wouldn't want to run into access spacing issues with a new interchange in that area. John noted that an interchange in that area would not meet rural access spacing standards but it would meet urban access spacing standards. The interchange near the High Desert Museum is not in an adopted plan, so we wouldn't want to assume it for the IAMP.

Refined Concept Evaluation – Alternative 1

- Andrew introduced Alternative 1 (Enhance Existing Ramp Terminals) which realigns the US 97 southbound ramp terminal with Baker Court and lengthens the southbound on-ramp. This alternative reduces the potential for queue spillback to US 97 with a longer southbound off-ramp and eliminates turning conflicts between closely spaced intersections. It does move the ramp terminal closer to the railroad crossing. The signal must be coordinated with the railroad crossing. The signal at the southbound ramp provides a wide but controlled crossing for people walking and biking.
 - David Amiton asked if there was any additional refinement on the feasibility of a roundabout at the US 97 northbound ramp terminal given the grades? Andrew said the project team was

waiting for TAC feedback before further refining grades and there is a limit to how detailed the project team can get at this stage of planning.

- John provided a summary of the operations of Alternative 1.
 - With the roundabout option: Operations are fair but do not meet ODOT mobility standards. Dual southbound right turn lanes would be required at the southbound ramp terminal to meet ODOT mobility standards, which is not recommended. Queues can be accommodated by lengthening the ramp by approximately 375'. Eastbound queues will queue past the railroad (about to Cinder Butte with the 95th percentile queues) so the traffic signal would need to be coordinated with the railroad crossing.
 - With the traffic signal option: Operations improve slightly due to additional lanes at the intersections. The signal at the northbound ramp increases queueing slightly but would not create any safety concerns.
- David Amiton noted that for the final documents it would be good to update the traffic signal insets to include the active transportation elements.
- Chris Cheng asked what the v/c ratio standard is? John noted that the standard is a v/c ratio at or below 0.75 but if it is close to the standard it is generally easier to get design exceptions.
- David Hirsch said v/c, delay and queueing are all important measures to consider with operations. David Amiton noted that if a larger cross section is required to meet targets, it might not balance the goals. John noted that the lane configurations shown for the traffic signals are shown to be as competitive as reasonably possible with the v/c ratio with the roundabout. Chris Cheng noted that during peak hours, all of the additional lanes would not be needed and added lanes would increase crossing distances for people walking and biking. Andrew noted that is why the project includes eight goals, to try to balance all of these competing interests.

Refined Concept Evaluation – Alternative 2

- Andrew introduced Alternative 2 (Tight Urban Diamond Interchange; TUDI) which reconstructs the interchange to a more “traditional” diamond configuration. This would replace the existing US 97 southbound on- and off-ramps with a configuration similar to that used for the northbound ramps. Both ramp terminals would be controlled with either roundabouts or traffic signals. Baker Court is shown with no left turn allowed out with the roundabouts, so instead a right turn would be made followed by a U-turn at the roundabout. This alternative would require minimal widening of the bridge structure over US 97 with only two lanes of motor vehicle traffic across the bridge for the roundabout alternative. It would include lengthening the southbound off- and on- ramps. This is the only alternative that includes an at-grade crossing with the multi-use path on the south side of Baker Road, although it is only a single-lane crossing.
 - Andrea Napoli asked about the traffic signal concept. Andrew noted that the four lanes are shown over the bridge compared to two lanes with the ramp.
 - Chris Cheng asked if we can perhaps add a cross-section of the bridge area to highlight the lane configuration differences. The concepts show comparable operations but not a comparable lane configuration.
- John provided an overview of the operations for Alternative 2.
 - With the roundabout option: The intersection v/c ratios are very close to the ODOT mobility standard, but do not meet the standard. Most queues are short with roundabouts but the westbound left turn into Baker Court is very short which could be a concern during the a.m. peak hour. It was asked if the southbound right turn slip ramp could be in the intersection rather than as a slip lane. Kayla Fleskes noted that the right turn slip lane could be closer to

the intersection than shown in the concept but it would be a necessary component of the alternative.

- With the traffic signal option: There would be a wider cross section. Side-by-side left turn lanes would be required across the bridge due to the close spacing of the ramp terminals.
- Jenn Cline noted that Caulder High School has recently been opened. Nearly all the students are coming from the Deschutes River Woods/Brookwood neighborhood and will be traveling through the interchange now.
 - David Hirsch noted that there may be a higher potential for southbound left turns and conflict with Baker Court during the a.m. peak hour. John noted that all of the alternatives will have some flexibility for an increase in through traffic on Baker Road but some may not accommodate increased turning movement traffic as well as others.

Refined Concept Evaluation – Alternative 4

- Andrew introduced Alternative 4 (Flyover Interchange) which reconstructs the US 97 southbound on- and off-ramps by realigning them to a shared intersection with the northbound ramps on the east side of US 97. This would help eliminate conflicts between the US 97 southbound ramps and the railroad or Baker Court. It would also eliminate many conflicts between motor vehicles and people walking and biking. This would require new bridges over US 97 for the southbound on- and off-ramps and a new bridge over the Arnold Canal. The Baker Court/Cinder Butte intersection is assumed as signalized in this alternative to provide a controlled west side crossing for people walking and biking. However, a traffic signal is likely not warranted and other enhanced crossing options could be considered. No subsurface investigation has been completed at this point, so this alternative would be the highest cost risk.
 - Per Peter Russell, with each of these alternatives the life cycle cost could be considered.
- John introduced the intersection operations for Alternative 4.
 - With the roundabout option: The ramp terminal is very close to meeting, but does not meet the ODOT mobility standard as a roundabout. Queueing is managed better than all other alternatives with no spillback concerns, other than the potential for westbound queues from Cinder Butte Road to spillback to the railroad if the intersection is signalized. A traffic signal at Cinder Butte would likely not meet volume-based signal warrants. An enhanced crossing could be considered near the edge of the bridge on the west side of US 97 instead.
 - With the traffic signal option: The ramp intersection is again very close to meeting, but does not meet, the ODOT mobility standard. It would perform with a higher v/c ratio (0.86) if the dual eastbound left turns were not included.
- Dave Warrick noted this would require building new bridges over the highway and could be a challenge for maintenance. However, this alternative seems to perform better among other goals by improving access spacing and mitigating the risk of queuing at the railroad.
 - Andrew noted that the bridges do assume some additional width for snow storage. Jim Scholtes noted that from a maintenance standpoint the bridges shouldn't be a huge concern if there is snow storage space. Roundabouts can be challenging at times for snow removal.
- Andrea asked if the multi-use path would be grade separated at the ramp terminal? Andrew noted that the multi-use path is assumed to be grade separated.
- Andrea sees the benefits of this alternative but the cost is a concern. David Hirsch noted that the cost would need to be compared to the benefits and that having one intersection location is likely better than two from a safety perspective. Peter Russell noted that talking about costs from a life-cycle cost perspective may also help.

Refined Concept Evaluation

- Given the limited time at the end of the meeting, John asked the TAC to comment on any big picture concerns with any of these alternatives and to deliver detailed comments or concerns to the project team after the meeting.
 - David Hirsch noted concerns with the TUDI alternative not addressing the close access spacing at Baker Court.
 - Chris Cheng noted concerns with the TUDI alternative having an additional crossing of the south side multi-use path for people walking and biking.
 - David Amiton noted concerns with the cost of the Flyover alternative, even if it provides additional value. Andrea Napoli agreed with David.
 - John noted concern around moving the ramp terminal closer to the railroad with Alternative 1.
 - Peter Russell said all of them have tradeoffs but there are no fatal flaws that he sees at this point.
 - Dave Warrick prefers the Flyover alternative, given the performance. However, the alternative does not lend itself well to phasing.
 - > Andrew noted there isn't much of a benefit from phasing Alternative 1 as an interim solution to Alternative 4, as it would be an expensive interim solution.

NEXT STEPS

- John asked the TAC to provide comments by October 22 so the project team could make adjustments prior to the open house.