



COMPARISON MATRICES AND CONCLUSIONS

Conceptual Alternatives were developed and evaluated in several areas during Step 5 of the Project Development Process. The findings of the evaluations were presented grouped by discipline in the preceding section of this document.

This section will summarize the conclusions by alternative. The matrices at the end of this section summarize the evaluation factors for each option.

Mainline Alternatives

I75-NB: No-Build Plus Minor Improvements - This alternative consists of the existing roadways and committed projects currently included in the OKI Transportation Improvement Plan (TIP) or local plans, plus minor improvements within existing right-of-way as part of rehabilitation activities. This option would not address the project's purpose and need. It would be expected to have no direct impacts.

I75-A: 4-Lane Continuity with Auxiliary Lanes - This alternative provides additional capacity north of the I-74 interchange by adding one lane each way to the existing three lane section. South of I-74, the existing four lane section would not receive an additional lane. Other improvements would include constructing standard width inside and outside shoulders, eliminating stopping sight distance (SSD) deficiencies, achieving minimum superelevation transitions and obtaining minimum clearances. This alternative would impact 25.1 acres of property and require 13 relocations (9 residential and 4 commercial). It would impact several parks: Bank Avenue Park (0.8 acres), Maple Street Park (0.2 acres), Mt. Storm Park (1.3 acres) and Elmwood Place Park (0.1 acres). The project would impact approximately 38 linear feet of stream. Noise analyses will be completed in subsequent steps of the PDP; however, based upon the density of adjacent residences and high traffic volumes, noise walls would be expected to be warranted adjacent to nearly all sensitive receptors. This alternative is estimated to have a right-of-way cost of approximately \$8.1 million and a construction cost of approximately \$216 million. Although this option fails to meet the purpose and need by providing no capacity improvements south of I-74, it will be carried forward due to the findings of the North-South Transportation Initiative until such time as the results of the MIS can be revisited with OKI.

I75-B: 5-Lane Continuity - With this alternative, a lane would be added south of I-74 in each direction and two lanes added north of I-74. Other improvements would be achieving standard inside and outside shoulder widths, minimum stopping sight distances, minimum horizontal and vertical clearances and adequate superelevation transitions. The merits of providing more than



one additional through lane in each direction north of I-74 were evaluated in a technical memo in October of 2005 (See Appendix 4.) Based upon preliminary findings detailed in the memo, this alternative has been eliminated from further consideration. It is not included on the comparison matrix.

I75-C: 4-Lane Continuity with Elevated Express Lanes - This alternative involves constructing supplemental express lanes to Alternative I75-A. The benefits of the express lanes are to provide additional lane capacity and to separate through traffic from local commuter traffic. This option was carried forward while being evaluated on the Thru the Valley project to the north. The Elevated Express Lanes option was estimated by ODOT District 8 at \$818 million to provide elevated structures for two 12-foot lanes with 4-foot shoulders in each direction. This estimate does not include additional costs to provide connections to interchanges. This option was ultimately dropped due to excessive costs and was eliminated from further consideration in this study early in Step 5. Therefore, this option is not included on the comparison matrix.

I75-D: 5/4-Lane - The purpose of this alternative is to provide one additional through lane throughout the project limits. I-75 is currently four lanes in each direction south of I-74 and three lanes in each direction north of I-74. Therefore, this option would result in five lanes in each direction south of I-74 and four lanes in each direction north of I-74. North of the I-74 interchange, this alternative is the same as I75-A. This alternative would impact 25.6 acres of property and require 15 relocations (9 residential and 6 commercial). It would have the same park impacts as Alternative I75-A: Bank Avenue Park (0.8 acres), Maple Street Park (0.2 acres), Mt. Storm Park (1.3 acres) and Elmwood Place Park (0.1 acres). The project would impact approximately 38 linear feet of stream. Noise analyses will be completed in subsequent steps of the PDP; however, based upon the density of adjacent residences and high traffic volumes, noise walls would be expected to be warranted adjacent to nearly all sensitive receptors. This alternative is estimated to have a right-of-way cost of approximately \$9.5 million and a construction cost of approximately \$224 million.

Interchange Alternatives

Due to capacity limitations imposed by the mainline alternatives, each interchange alternative will be evaluated for ramp metering during the next phase.

Hopple Interchange

HOP-NB: No-Build Plus Minor Improvements – This alternative would maintain the existing interchange layout but upgrade the existing ramp terminals to current high-speed standard treatments. No additional capacity would be expected with this alternative. This option would not improve safety and congestion issues at the intersections of the I-75 ramps, nor along Hopple



Street, Central Parkway, or Martin Luther King Drive. This option would be expected to have no direct property impacts. Ramp terminal improvements would be expected to occur in conjunction with the mainline widening project. No additional costs would be anticipated.

HOP-A: Tight Urban Diamond Interchange (TUDI) – This alternative would involve construction of a full movement TUDI, resulting in closing the Bates Avenue entrance ramp and grade-separating the Central Parkway / MLK Drive intersection. Existing ramps would be closed and reconstructed. This option would improve access to the Uptown area and offer the potential for a gateway. It would result in approximately 5.9 acres of property impact and include 15 potential relocations (10 residential and 5 commercial). Approximately 0.5 acres would be affected within the Rachel-Sidney Neighborhood. Right-of-way costs are estimated at \$7.3 million, with \$18 million for construction.

HOP-B: Offset Roundabout Diamond Interchange – In the course of analyzing the operation of the Central Parkway / MLK Drive intersection, three through lanes on MLK Drive was necessary. Since ODOT has not approved the use of three-lane roundabouts, the roundabout intersection was dismissed in favor of a signalized intersection. This option was eliminated from further consideration and is not included on the comparison matrix. This option will not be carried forward to Step 6.

HOP-B1: Offset Diamond Interchange – This alternative would involve a full movement offset diamond interchange and result in closing the Bates Avenue entrance ramp. Existing ramps would be closed and reconstructed. This option would contain lower speed curves on the I-75 NB ramps compared to the HOP-A alternative. This option would improve access to Uptown and provide for a potential gateway. It would involve approximately 5.3 acres of property acquisition and the relocation of 5 properties (4 residential and 1 commercial). This option would also involve 0.5 acres of impact to the Rachel-Sidney Neighborhood. It would involve less work than the HOP-A option in the known landslide area east of I-75. Right-of-way is estimated at \$4.8 million with \$21.2 million for construction.

I-74 Interchange

I74-NB: No Build plus Minor Improvements – This alternative would retain the existing interchange without any substantive changes. Minor improvements would be the closure of the existing Elmore Street, Spring Grove Avenue and Central Parkway ramps. However, these ramp closures should only be considered if the I-74 / Colerain Avenue interchange is modified for full movements. Minor capacity improvements might be realized by closing local access ramps. This option would result in no direct impacts.



I74-A: Fully Directional Interchange with Local Access Maintained – This alternative involves retaining existing two-lane directional ramps serving I-75 south and reconstructing the single-lane ramps serving I-75 north as directional ramps. In addition, the Elmore Street and Spring Grove Avenue ramps on the west side of the Mill Creek would be closed and new ramps from I-75 to Spring Grove Avenue would be constructed. The existing ramps to Central Parkway would also be reconstructed to create a standard T-type intersection with Central Parkway. This option has the potential to impact the Ludlow Viaduct overhead bridge. It would result in approximately 0.6 acres of impact to Mt. Storm Park. Approximately 720 linear feet of stream impact is anticipated. This option would affect approximately 9.1 acres of property. Right-of-way costs are estimated at \$1.2 million, with a construction cost of \$56.1 million. In addition, the Cinergy Electrical substation would be impacted at a cost of approximately \$4 million. Based upon vertical constraints, it is likely that the I-75 southbound ramp to Colerain is not feasible as currently illustrated. If carried forward into Step 6, this option will need to be modified.

I74-B: Fully Directional Interchange with No Local Access – This alternative would involve a system-only interchange and would be constructed by retaining the two-lane directional ramps serving I-75 south and constructing new single-lane directional ramps serving I-75 north. All other ramps including Elmore Street, Spring Grove Avenue, and Central Parkway ramps would be closed. By closing local access ramps, this option would require vehicles to use the adjacent interchanges and Hopple and Colerain. This option would impact approximately 0.6 acres of Mt. Storm Park. It would affect approximately 5.4 acres of property with no relocations. It would involve approximately 720 feet of stream impacts. Right-of-way costs are estimated at \$800,000, with \$45 million for construction.

Colerain Interchange

COL-NB: No Build plus Minor Improvements – Minor improvements could include upgrading ramps with standard high-speed terminals. Aside from missing movements, this interchange has no other apparent deficiencies. No additional capacity would be expected with this alternative. This alternative would have no direct impacts.

COL-A: Low Impact Improvement with Full Movements – This alternative would add the missing movements by constructing a straight ramp for the NB to EB movement, creating a signalized median cross over for a WB to SB movement and completing the ramp for a SB to WB movement. The existing I-74 bridges over Beekman Street would not be impacted with this alternative. The creation of a full-movement interchange would improve service to the surrounding neighborhoods. This option would impact less than 0.1 acres of Beekman Park and a wetland of less than 0.1 acre. It would impact 2.7 acres of property and involve one residential relocation. Right-of-way costs are estimated at \$350,000, with construction estimated at \$6.9 million.



Once into PDP Step 5, a determination was made that inadequate spacing may result between the I-74 WB to I-75 WB ramp terminal and the Colerain Avenue exit ramp. This may be mitigated by constructing the exit ramp on the west side of Beekman Street as a low-speed loop. This arrangement should provide adequate space for weaving (> 2,000 feet) and deceleration (> 460 feet). This alternative would require widening of the I-74 WB bridges over Beekman Street to accommodate the ramp. This new alternative was not developed as part of the Conceptual Alternatives Study but will be considered further in Step 6.

COL-B: Double Roundabout Diamond Interchange (DRDI) – As with COL-A, this alternative provides for a full movement interchange at Beekman Street. However, the ramp intersections are proposed to be constructed as two-lane modern roundabouts. This option would be expected to provide improved safety compared to signalized intersections but would have the potential for driver confusion due to the use of a modern roundabout. As in Alternative COL-A, this improvement would increase service to surrounding neighborhoods. This option would impact approximately 0.1 acres of Beekman Park and a wetland of less than 0.1 acre. It would involve acquisition of approximately 1.4 acres and one residential relocation. Right-of-way is estimated at \$280,000 with \$7.6 million for construction.

As with Alternative COL-A1, once into PDP Step 5, this alternative will need to be modified in Step 6 to eliminate conflicts with the I-74 interchange.

Mitchell Interchange

MIT-NB: No Build plus Minor Improvements – This alternative would include lengthening existing ramps, correcting deficient vertical SSD and upgrading existing ramp terminals to meet current high-speed standards. No additional capacity would be expected with this alternative. This option would have no direct impacts.

MIT-A: Tight Urban Diamond Interchange (TUDI) – This option would involve replacing the existing standard diamond interchange with a tight urban diamond by reconstructing the I-75 bridge over Mitchell Avenue and providing the necessary left-turn lanes under the structure. Additional left-turn storage would be provided outside the relocated ramp intersections. This option would impact approximately 1.3 acres of property. Approximately 90 linear feet of stream may be impacted. Right-of-way is estimated at \$885,000 with construction at \$12.5 million.

Norwood Lateral Interchange

NOR-NB: No Build Plus Minor Improvements – Minor improvements would include upgrading existing ramp terminals to meet current high-speed standards. No additional capacity would be expected with this alternative. This option would not be expected to have direct effects.



NOR-A: Modified Interchange with Additional Ramp Lanes – In addition to improving ramp terminals, this alternative would involve adding an additional lane to the SR 562 WB to I-75 NB and I-75 SB to SR 562 EB ramps to meet future traffic demand. The I-75 NB entrance ramp would be constructed as a parallel-type entrance terminal. This option would require the closure of the Towne Street ramps due to design standards. It would impact approximately 4.9 acres of property. Right-of-way costs are estimated at \$900,000 with \$10.3 million for construction.

Towne Street Interchange

TOW-NB: No Build – This option would involve no action other than routine maintenance. The existing safety conflicts and congestion problems would continue. This option would be expected to have no direct impacts.

TOW-A: Close Ramps – Due to short spacing between the SR 562 and Towne Street interchanges, the Towne Street ramps would be closed to improve safety and reduce congestion due to conflicts. This option would have no property impacts and a minimal construction cost, expected to be less than \$250,000. This option would reduce service to Elmwood Place and would require consideration of traffic routing and improvements to other routes or intersections that would be directly impacted by the closure. The extent of needed improvements, if any, will be determined during Step 6 when the trip reassignments will be evaluated.

Paddock Interchange

PAD-NB: No Build Plus Minor Improvements – Minor improvements would include upgrading existing ramp terminals to meet current high-speed standards. No additional capacity would be expected with this alternative. This option would be expected to have no direct effects.

PAD-A: Low Impact / Spot Improvements – In addition to upgrading ramp terminals, this alternative includes adding an additional right turn lane from Paddock Road onto I-75 SB. This spot improvement would result in the intersection achieving a LOS C in the AM peak hour (based on the estimated future traffic). This option would impact approximately 1.3 acres of property and would be expected to have no other noteworthy impacts. Right-of-way is estimated at \$100,000 with a construction cost of \$825,000.

PAD-B: Double Roundabout Diamond Interchange (DRDI) – This alternative proposes to construct a DRDI with multilane roundabouts located at the ramp intersections and the intersection of Paddock Road / Seymour Avenue. With this alternative, the Paddock Road Bridge over I-75 would be avoided and the Paddock Road intersection of the I-75 NB ramps and Summit Road would be consolidated into a single roundabout intersection. This alternative was eliminated based upon the capacity analysis of the proposed roundabout that would comprise I-75 NB exit and entrance



ramps, Paddock Road and Summit Avenue. It was determined that a three-lane roundabout would be required at opening day. ODOT's current opinion is not to open a roundabout with three lanes, due to driver unfamiliarity. Therefore, this option is not included on the comparison matrix.

