IAMP 127 Improvement Concepts – Summary Evaluation Matrix

ID	Location	General Description	Purpose	Traffic Operations and Safety[1,2,3]	Basic Roadway Geometry and Right of Way[4]	Environmental and Land Use[5]	Cost Opinion[6]
Intersection Improvements							
1	Edenbower Blvd at Stewart Pkwy	Increase capacity by adding a second eastbound left-turn lane on Stewart Pkwy Concept 1, Option A (Figure 4-3) ▪ Add second left-turn lane on eastbound Stewart Pkwy ▪ Widen Edenbower Blvd to add second northbound receiving lane ▪ Modify signals for protected left turns Concept 1, Option B (Figure 4-4) ▪ Convert one through lane on eastbound Steward Pkwy to a shared left-through lane ▪ Restripe Edenbower Blvd and widen to provide second northbound receiving lane ▪ Modify signal timing for split phasing on Steward Pkwy Concept 1, Option C (Figure 4-5) ▪ Convert one through lane on eastbound Steward Pkwy to a dedicated left-turn lane ▪ Restripe Edenbower Blvd and widen to provide second northbound receiving lane	Improve operations	Baseline ▪ Current ADT = 24,300 vpd and Forecast ADT = 31,700 vpd ▪ Forecast PM peak eastbound left-turns = 890 vph ▪ Forecast PM peak v/c ratio = 1.02 with LOS E operations with current intersection configuration ▪ 37 crashes during a 5-year study period All Options: ▪ Reduces conflicts between through movements and excessive queuing from left-turn lanes ▪ Access control may be needed for dual left-turn lanes on Stewart Pkwy and northbound lane merge on Edenbower Blvd ▪ None of the options address sight distance concerns on Stewart Pkwy Option A ▪ Forecast v/c ratio = 0.75 with LOS C operations (meets city standards) with dual eastbound left-turn lanes ▪ Provides protected left turns for all approaches, potentially reducing turning movement and angle crashes associated with left turns Option B ▪ Forecast v/c ratio = 0.80 with LOS D operations (meets city standards) with dual eastbound left-turn lanes ▪ Eliminates the dedicated southbound left-turn lane on Edenbower Blvd and creates a shared left/through lane Option C ▪ Forecast v/c ratio = 0.80 with LOS D operations (meets city standards) with dual eastbound left-turn lanes ▪ Eliminates the dedicated southbound left-turn lane on Edenbower Blvd and creates a shared left/through lane ▪ Through lane converted to dedicated left-turn lane creates a "trap" lane	▪ Preliminary layouts assume AASHTO criteria and ODOT standards ▪ Stewart Pkwy and the north leg of Edenbower Blvd based on 40 mph design speed ▪ South leg of Edenbower Blvd based on 25 mph design speed Option A ▪ Assumes Stewart Pkwy widened on north side for a length of approximately 600 feet to add second eastbound left-turn lane requires ROW acquisition and impacts some parking lots ▪ Assumes Edenbower Blvd widened primarily on east side for a length of approximately 1,000 ft (lane + merge) to add second northbound receiving lane which requires ROW acquisition and impacts parking lots; may require some widening on east side to avoid building impacts ▪ Assumes Stewart Pkwy also widened east of Edenbower Blvd to align the westbound through lanes with the receiving lanes which may require ROW acquisition and cause minor parking impacts Option B ▪ Less ROW acquisition than Option A ▪ No additional ROW would be required on the west leg of Stewart Pkwy ▪ Additional receiving lane on Edenbower Blvd would be partially accommodated by reallocating turn lanes on the southbound approach, reducing ROW needs and parking impacts compared to Option A Concept 1, Option C ▪ Same as Option B	▪ No residence or business displacements with any options ▪ Access control plan must consider economic impacts to affected properties Option A ▪ Roadway widening on both Stewart Pkwy and Edenbower Blvd impacts several parking lots ▪ Mercy Dr from Stewart Pkwy is the entrance for Mercy Hospital. Impacts to hospital emergency access must be avoided ▪ Widening Stewart Pkwy northward would bring roadway closer to Sweetbrier Creek and its associated wetland and riparian corridor ▪ Widening on Stewart Pkwy east of intersection could extend to Newton Creek and its associated wetland and riparian corridor ▪ If project is within 100-year floodplain for Newton Creek, it may have to demonstrate it will be consistent with applicable FEMA and local floodplain standards Option B ▪ Parking impacts would be present on Edenbower Blvd north of intersection and Stewart Pkwy east of intersection ▪ Potential for environmental impacts is lower because project extents are reduced Concept 1, Option C ▪ Same as Option B	▪ Option A: $1.6 million ▪ Option B: $700,000 ▪ Option C: $700,000 ▪ Estimates include widening and sidewalk replacement ▪ Estimates do not include ROW acquisition costs or environmental mitigation
2	Edenbower Blvd at Stewart Pkwy	Install multi-lane roundabout with dual approach lanes on all legs (Figure 4-6)	Improve operations and safety	Baseline ▪ Current ADT = 24,300 and Forecast ADT = 31,700 ▪ Forecast PM peak v/c ratio = 1.02 with LOS E operations with current intersection configuration ▪ 37 crashes during a 5-year study period Concept 2 ▪ Forecast v/c ratio = 0.85 with LOS D operations (meets city standards) with multi-lane roundabout ▪ Roundabouts reduce conflict points and generally have both fewer and less severe crashes ▪ Improves sight distance on Stewart Pkwy ▪ Bicyclists may have trouble traveling with vehicular traffic but can travel as pedestrians through the intersection ▪ Pedestrian crossing width shortened	▪ Preliminary layouts assume AASHTO criteria and ODOT standards ▪ Stewart Pkwy and the north leg of Edenbower Blvd based on 40 mph design speed ▪ South leg of Edenbower Blvd based on 25 mph design speed ▪ All approaches require widening or realignment to accommodate footprint of multi-lane roundabout ▪ ROW acquisition needed in all quadrants surrounding the intersection would incur ROW impacts	▪ Roadway widening on both Stewart Pkwy and Edenbower Blvd impacts several parking lots ▪ Potential environmental impacts are similar to those identified for Concept 1, Option A (Sweetbriar Creek and Newton Creek) ▪ Widening on Edenbower Blvd south of intersection could extend to trail accessing Charles S. Gardiner Park which could result in 4(f) impacts ▪ Project should be vetted with Mercy Hospital and emergency response personnel due to the change in traffic operations and potential for intersection closure during construction	▪ $2.6 million ▪ Estimates do not include ROW acquisition costs or environmental mitigation ▪ Assumes full closure of the intersection for construction; staged construction would incur significantly more cost

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3	Edenbower Blvd/Stewart Pkwy	Realign intersection to better accommodate major vehicular traffic movements and close access to Edenbower Blvd south of intersection (Figure 4-7)	Improve operations and safety	Baseline ▪ Current ADT = 24,300 and Forecast ADT = 31,700 ▪ Forecast PM peak v/c ratio = 1.02 with LOS E operations with current intersection configuration ▪ Major movement in PM peak hour is eastbound left and southbound right ▪ 37 crashes during a 5-year study period Concept 3 ▪ Redirects traffic from south leg of Edenbower Blvd to other access points and driveway on Stewart Pkwy increasing travel distance and inconveniencing drivers ▪ Forecast v/c ratio = 0.83 with LOS C operations (meets city standards) with intersection realignment ▪ Reduces volume of vehicles turning left, decreasing the likelihood of turning/angle crashes ▪ Addresses sight distance issues on Stewart Pkwy ▪ Access control may be needed near realigned intersection and along northbound lane merge on Edenbower Blvd	▪ Preliminary layouts assume AASHTO criteria and ODOT standards ▪ Stewart Pkwy and the north leg of Edenbower Blvd based on 40 mph design speed ▪ ROW acquisition needed for intersection realignment and for merge lane on Edenbower Blvd north intersection ▪ Does not include any layouts for local network or access connections to address closure of south leg of Edenbower Blvd	▪ Significant impact to property on northwest corner of intersection ▪ Property and parking impacts present on Edenbower Blvd north of intersection ▪ Closure of south leg of Edenbower Blvd would likely have significant economic impacts to the businesses served by the roadway from limited accessibility and reduction in passby traffic ▪ Could affect Umpqua Transit bus stop on south side of Stewart Pkwy ▪ Potential environmental impacts are similar to those identified for Concept 1, Option A (Sweetbriar Creek and Newton Creek) ▪ Access control plan must consider economic impacts to affected properties	▪ $1.9 million ▪ Estimates do not include ROW acquisition costs or environmental mitigation ▪ Excludes costs for any local network or access connections to address closure of Edenbower Blvd ▪ Assumes full closure of the intersection for construction; staged construction would incur significantly more cost
4	Edenbower Blvd at Stewart Pkwy	Realign intersection to form a perpendicular "T" intersection and close access to Edenbower Blvd south of intersection Concept 4, Option A (Figure 4-8) ▪ Install a single left-turn lane on the west leg, and dual left-turn lanes on the south leg. Concept 4, Option B (Figure 4-9) ▪ Install dual left-turn lanes on the west and south legs of the intersection.	Improve operations and safety	Baseline ▪ Current ADT = 24,300 and Forecast ADT = 31,700 ▪ Forecast PM peak v/c ratio = 1.02 with LOS E operations with current intersection configuration ▪ Major movement in PM peak hour is eastbound left and southbound right ▪ 37 crashes during a 5-year study period All Options ▪ Redirects traffic from south leg of Edenbower Blvd to other access points and driveway on Stewart Pkwy increasing travel distance and inconveniencing drivers ▪ Improves sight distance by straightening approaches and eliminating intersection skew Option A ▪ Forecast v/c ratio = 0.90 with LOS D operations (does not meet city standard) ▪ Eliminates need for dual left-turn lanes on eastbound Stewart Pkwy and additional receiving lanes on northbound Edenbower Blvd ▪ Access control may be needed near realigned intersection Option B ▪ Forecast v/c ratio = 0.60 with LOS B operations (meets city standard) ▪ Provides dual left-turn lanes on eastbound Stewart Pkwy ▪ Access control may be needed near realigned intersection and along northbound lane merge on Edenbower Blvd	▪ Preliminary layouts assume AASHTO criteria and ODOT standards ▪ Stewart Pkwy and the north leg of Edenbower Blvd based on 40 mph design speed ▪ Preliminary concept does not include any layouts for local network or access connections to address closure of south leg of Edenbower Blvd Option A ▪ Minimal additional ROW acquisition aside from impacts due to realignment, mostly focused in northwest quadrant ▪ Does not require any roadway widening beyond area affected by realignment Option B ▪ Additional ROW acquisition needed compared to Option A for widening of Edenbower Blvd north of the intersection	▪ Closure of south leg of Edenbower Blvd would likely have significant economic impacts to the businesses served by the roadway from limited accessibility and reduction in passby traffic ▪ Could affect Umpqua Transit bus stop on south side of Stewart Pkwy ▪ Potential environmental impacts are similar to those identified for Concept 1, Option A (Sweetbriar Creek and Newton Creek) ▪ Access control plan must consider economic impacts to affected properties Option A ▪ Some property and parking impacts on northwest corner of intersection Option B ▪ Same impacts as Option A for northwest corner ▪ Property and parking impacts on Edenbower Blvd north of intersection for merge lane	▪ Option A: $1.6 million ▪ Option B: $1.9 million ▪ Estimates do not include ROW acquisition costs or environmental mitigation ▪ Excludes costs for any local network or access connections to address closure of Edenbower Blvd ▪ Assumes full closure of the intersection for construction; staged construction would incur significantly more cost

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5	Edenbower Blvd at Aviation Dr	Extend westbound right-turn bay (Figure 4-10)	Address queuing concerns	Baseline ▪ Current ADT = 16,700 and Forecast ADT = 19,800 ▪ 10 crashes during a 5-year study period (mostly rear end) Concept 5 ▪ Extending the turn bay would improve safety by allowing the right-turn traffic to get out of the way of through traffic. ▪ Increased storage length reduces the number of vehicles blocking the bike lane during queuing	▪ Widening Edenbower Blvd to extend westbound right-turn lane requires additional ROW on north side of roadway ▪ Lighting and sidewalks need to be relocated	▪ Mapped wetlands identified in close proximity to the project although any roadside wetland area likely highly degraded ▪ Improvement not anticipated to extend into undisturbed area	▪ $75,000 ▪ Estimate does not include ROW acquisition costs or environmental mitigation
6	Edenbower Blvd at Stephens St (OR 99)	Extend striped eastbound left-turn bay and northbound left-turn bay (Figure 4-11)	Address queuing concerns	Baseline ▪ Current ADT = 19,850 and Forecast ADT = 22,800 ▪ 12 crashes during a 5-year study period (mostly rear end and turning) Concept 6 ▪ Reduces conflicts between through movements and excessive queuing from left-turn lanes which improves safety ▪ May reduce delay for other travel movements	▪ Project completed within the existing paved roadway	▪ No impacts	▪ $15,000
Interchange Ramp Improvements							
7	Westbound to Northbound On-Ramp	Provide additional delineation in gore area with chevron striping (Figure 4-12)	Address driver expectation concerns	Baseline ▪ Current ADT = 1,150 vpd and Forecast ADT = 1,950 vpd ▪ 8 crashes during a 5-year study period Concept 7 ▪ Provides visual cue to drivers of the appropriate time to merge ▪ No impact on capacity	▪ Project completed within the existing paved roadway ▪ Assumes 8" striping	▪ No impacts	▪ $20,000
8	Westbound to Northbound On-Ramp	Install a visual barrier on the westbound to northbound on-ramp (Figure 4-13)	Address driver expectation concerns	Baseline ▪ Current ADT = 1,150 vpd and Forecast ADT = 1,950 vpd ▪ 8 crashes during a 5-year study period Concept 7 ▪ Prohibits drivers from looking at I-5 traffic before it is time to start merging ▪ No impact to vehicle carrying capacity since guardrail on west side currently defines unobstructed roadway width	▪ Project completed within the existing paved roadway ▪ Assumed concrete barrier with glare shields	▪ No impacts	▪ $100,000
Multimodal Improvements							
9	Northbound Ramp Terminal	Improve east-west pedestrian crossing across northbound on-ramp by adding a raised island or extending existing curb and sidewalk (Figure 4-14)	Improve safety and continuity of pedestrian facilities	Baseline ▪ Current ADT = 16,500 vpd and Forecast ADT = 19,700 vpd ▪ 13 crashes during a 5-year study period (majority of crashes occurred before or during reconstruction of northbound loop-ramp) Concept 9 ▪ Shortens distance pedestrian has to cross intersection with raised island or curb and sidewalk extension ▪ Could include striped crosswalk to further increase driver awareness of pedestrian activity ▪ Reduces pedestrian exposure with vehicular traffic ▪ No reduction in vehicular capacity ▪ Vehicle carrying capacity would be similar to other on-ramps at interchange	▪ Construction of raised island or curb extension needs to meet geometric requirements for westbound right turn and northbound through movement from off-ramp ▪ Improvements would occur within existing paved roadway	▪ No impacts	▪ 20,000

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10	Edenbower Blvd from Broad St to Stewart Pkwy	Enhance pedestrian crossings by installing striped crosswalks and directional ADA compliant curb ramps for north-south travel along west side of Edenbower Blvd (Figure 4-15)	Improve safety and continuity of pedestrian facilities	Baseline ▪ Current ADT = 14,800 and Forecast ADT = 18,650 ▪ 5 crashes during 5 year study period Concept 10 ▪ Enhanced curb ramps improve directional guidance ▪ Striped crosswalks help identify the presence of pedestrian activity and increase visibility to motorists turning onto side streets ▪ Clearly defined and frequent crosswalks may encourage slower travel speeds along Edenbower Blvd ▪ No impact on vehicular capacity	▪ Improvements would occur within the available ROW	▪ No impacts	▪ $25,000

Acronyms: vpd= vehicles per day; vph = vehicles per hour; mph = miles per hour; v/c ratio = volume-to-capacity ratio; LOS = level of service

Notes:

1. Traffic operations were evaluated for concepts that were identified to address operational deficiencies. The operational assessment focuses on the volume-to-capacity (v/c) ratio for the 2012 existing and 2035 future condition.
2. At intersections where potential changes in traffic control or turn lanes were considered, the procedures in the ODOT Analysis Procedures Manual (APM) were followed.
3. Some improvements are may address safety as well as traffic operations deficiencies. Crash patterns from the five-year analysis period (2006 through 2010) are discussed for those improvements that influence safety.
4. Illustrations were developed for concepts that involve infrastructure improvements.
5. Impacts to resources were qualitatively assessed based on the data assembled for the environmental and land use reconnaissance. The level of analysis of the study area is designed to identify those areas judged to have considerable potential for conflict.
6. Rough order of magnitude cost opinions were developed using present day dollars and are consistent with standard estimating methods. The estimates include a contingency factor but do not include right-of-way costs. The cost opinions are intended to help differentiate alternatives by approximating the relative costs of each project.