1.0 DECISION

The purpose of this Record of Decision (ROD) is to document the Federal Highway Administration's (FHWA) and Federal Transit Administration's (FTA) decision on the United States Highway 36 (US 36) Corridor Project, Colorado, and to identify funding for the approved action consistent with the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a) (*Fiscally-constrained Element*). This ROD has been prepared in compliance with 23 Code of Federal Regulations (CFR) 771 and 774, Council on Environmental Quality Regulations 40 CFR 1500-1508, and the requirements of the National Environmental Policy Act of 1969 (NEPA), as amended.

The *US 36 Corridor Final Environmental Impact Statement and Final Section 4(f) Evaluation* (*US 36 Corridor FEIS*) (US 36 Mobility Partnership 2009a) is incorporated by reference in this ROD per 40 CFR 1502.21. The following subsections of this chapter provide a brief summary of the contents of the *US 36 Corridor FEIS*. Appendix D, Measures to Minimize Harm from the Proposed Action (Phase 1), provides a summary of the mitigation measures for Phase 1 of the Preferred Alternative.

This project was jointly planned by FHWA and FTA, in cooperation with the Colorado Department of Transportation (CDOT) and the Regional Transportation District (RTD). The U.S. Army Corps of Engineers (USACE) was a cooperating agency. The US 36 Corridor Project includes the reconstruction of US 36 road surface, the addition of one buffer-separated managed lane in each direction from Federal Boulevard to west of Cherryvale Road, bus rapid transit (BRT) ramp stations that provide efficient passenger boarding and alighting, auxiliary lanes between most interchanges, a bikeway the entire length of the project, and alternative transportation strategies. Many bridges and interchanges will be rebuilt or be modified as well to help accommodate these changes and improve structure functionality. The project study area is shown on Figure 1-1, Study Area.

The purpose of improvements in the corridor is to improve mobility along the US 36 corridor from Interstate 25 (I-25) in Adams County to Foothills Parkway/Table Mesa Drive in Boulder, and among intermediate destinations. The transportation needs of the project are:

- Increase trip capacity.
- Expand access.
- Provide congestion relief.
- Expand mode of travel options.
- Increase efficiency of transit service.
- Update outdated highway facilities.

FHWA, FTA, RTD, and CDOT identified a Preferred Alternative (see Figure 1-2, Preferred Alternative — Managed Lanes, Auxiliary Lanes, and Bus Rapid Transit) for the project in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a). The Combined Alternative Package (Preferred Alternative) meets the Purpose and Need of the project while being sensitive to the issues raised by public comment. These issues include minimizing cost and environmental impacts of the project from what was presented in the Draft Environmental Impact Statement (DEIS) as well as being supportive of multi-modal solutions in the corridor. With this ROD, FHWA, FTA, RTD, and CDOT are selecting the Proposed Action (Phase 1) (see Figure 1-3, Phase 1 Elements — Proposed Action), which constitute a portion of the Preferred Alternative, for implementation. This Proposed Action best provided transportation improvements to constituents all along the corridor with the funding that was available, while still keeping with operational requirements and safety, which are priorities for FHWA and FTA.

Figure 1-1: Study Area

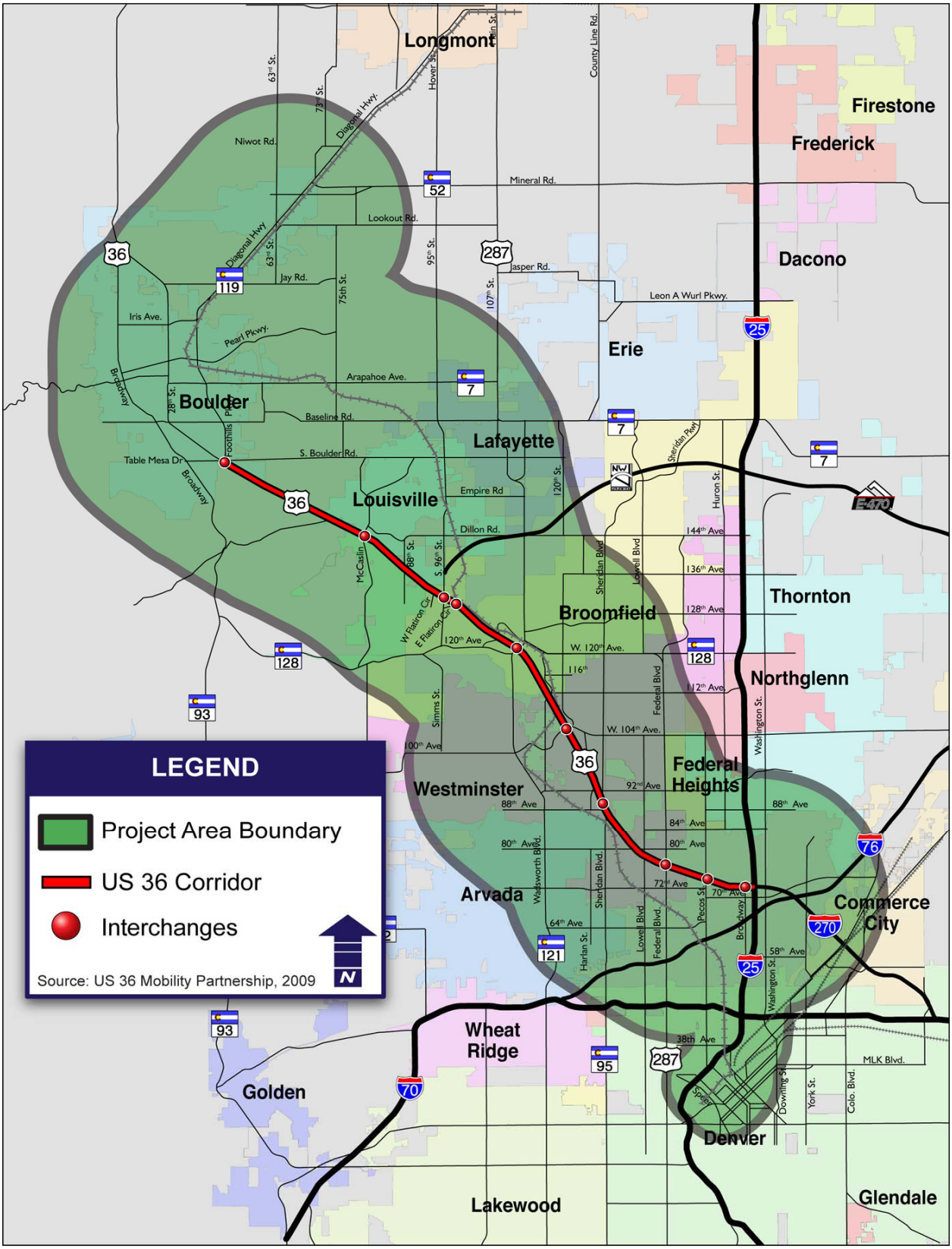

**Figure 1-2: Preferred Alternative —
Managed Lanes, Auxiliary Lanes, and Bus Rapid Transit**

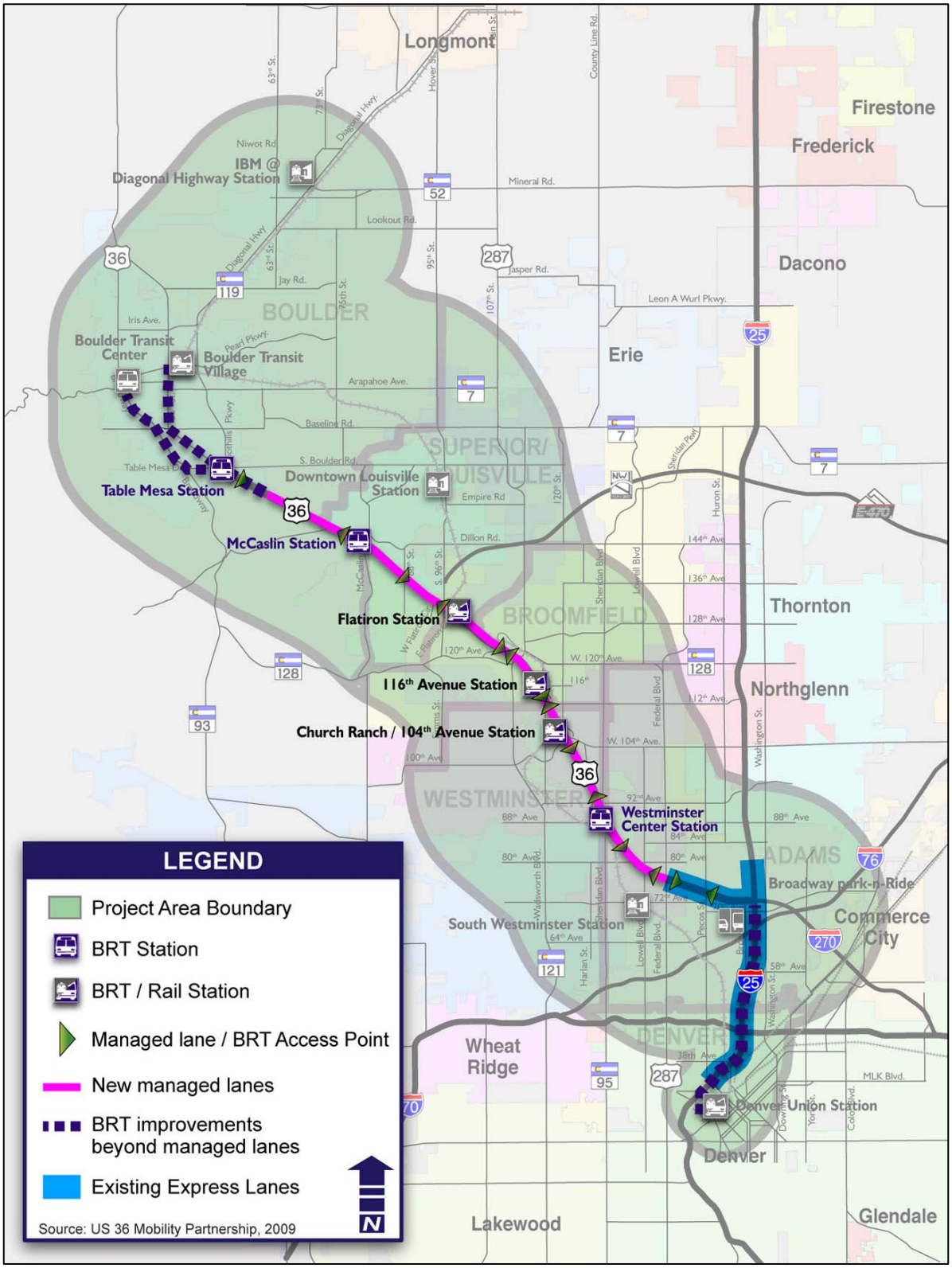

Figure 1-3: Phase 1 Elements — Proposed Action

As described in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a), FHWA, FTA, RTD, and CDOT intend to work toward implementing the Preferred Alternative in its entirety. Due to current funding limitations and federal requirements that require financing to be identified for the project before a decision document can be signed, only Phase 1 is being selected for implementation in this ROD. Subsequent project phases will be selected and implemented as additional funding becomes available and included in the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a), enabling FHWA, FTA, RTD, and CDOT to work toward implementation of the entire Preferred Alternative. For each subsequent phase, a ROD may be issued detailing the phase to be implemented. A phase may or may not be consistent with the phasing presented in the *US 36 Corridor FEIS*. However, a phase must be consistent with the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended. FHWA, FTA, RTD, and CDOT will review the information provided in the *US 36 Corridor FEIS* and this ROD in preparing each subsequent ROD.

1.1 PREFERRED ALTERNATIVE: MANAGED LANES, AUXILIARY LANES, AND BUS RAPID TRANSIT (WITH BIKEWAY)

The following is a summary of the Preferred Alternative as identified in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a). Appendix A, Corridor Reference Maps, of the *US 36 Corridor FEIS* contains maps of the Combined Alternative Package (Preferred Alternative) and Phase 1. A graphic of the alternative elements (otherwise know as a "package" of elements) is shown on Figure 1-2, Preferred Alternative — Managed Lanes, Auxiliary Lanes, and Bus Rapid Transit.

In general, the entire Preferred Alternative would:

- Add one managed lane in each direction on US 36. The managed lanes would connect to, and be an extension of, the existing I-25 express lanes that go to and from downtown Denver. The reversible managed lane between I-25 and Pecos Street would remain and traffic would continue to use the existing I-25/US 36 managed lane ramp. The managed lanes from Pecos Street to west of Cherryvale Road in Boulder would become a single dedicated lane in each direction (not reversible), located in the median of US 36, and separated from the general-purpose lanes by a painted buffer.
- Access to this new managed lane will be provided at separate ingress and egress points located between each interchange.
- Separate the managed lane by a 4-foot wide painted stripe (known as buffer separation).
- Add auxiliary lanes between most interchanges.
- Provide for buses to exit US 36 to pick up and drop off passengers at stations located on ramps and adjacent park-n-Rides.
- Provide for bus bypass lanes at most on-ramps, with the exception of Foothills Parkway eastbound, Federal Boulevard, Pecos Street, and Broadway.
- Include improvements to cross-street intersections and interchanges. Those improvements will include upgrading lane transitions of ramp terminals, widening cross streets at the intersection, lengthening turn-lanes and adding turn-lanes.
- Provide a bikeway facility adjacent to US 36 connecting Boulder and Denver. The bikeway is an off-highway separated multi-use path adjacent to US 36. Where appropriate, the bikeway connects to and makes use of existing on-street and off-street facilities. Maintenance of the US 36 bikeway will be the responsibility of the local jurisdictions through an Intergovernmental Agreement with CDOT.
- Provide Transportation Demand Management (TDM) improvements throughout the corridor, such as strategies designed to make the most efficient use of existing transportation facilities by reducing the actual demand placed on these facilities. Examples include coordinating flexible work schedules to help decrease demand at peak periods, carpooling/vanpooling, encouraging telecommuting, employer and community-based ECO passes (bus passes), an incident management plan and courtesy patrol,

and coordinated land use and transportation planning that increases the convenience of using transit. Additionally, the Preferred Alternative will offer the ability to use Intelligent Transportation System (ITS) messaging to alert drivers to roadway conditions. These ideas are listed in more detail in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

- New and more frequent bus service in the US 36 corridor will be provided. The Preferred Alternative proposed service changes listed in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a) reflect improvements to operations based on existing service at this time. Bus service plans for BRT will be merged with bus service plans for the Northwest Rail Corridor Project. Bus operations will be phased-in commensurate with service standards and ridership growth. RTD makes schedule changes and adjustments several times a year to respond to demand and improve productivity.

For a full description of the Preferred Alternative elements, please see the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

1.2 PHASED IMPLEMENTATION

A phased approach is being taken because the solution to the identified transportation problems cost more to implement than is available in the *Fiscally-constrained Element* of the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a). The Clean Air Act (§176[c]) limits what FHWA and FTA can approve in a ROD to what is included in a conforming, *Fiscally-constrained Element* of the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended.

The identification of an initial phase for implementation is consistent with FHWA and FTA requirements to have funding for projects identified before final decisions are made. As funds become available, it is the intent of FHWA/CDOT and FTA/RTD to work toward implementation of the Preferred Alternative in its entirety through this phased approach. Adjustments to the level of funding in the fiscally-constrained plan for specific projects may be needed as final cost estimates are developed.

This first phased ROD is consistent with projects and funding currently identified in the *Fiscally-constrained Element* of the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a). Projects that will be necessary to complete implementation for the entire Preferred Alternative but that are not included in the first phased ROD may be identified in future RODs, which may be prepared as funding is identified and projects are identified in the fiscally-constrained plan. These future projects will be designed to minimize interim infrastructure those parts of the project that would not have to be built if the entire Preferred Alternative were built in one action, such as a ramp that would be built to enhance function of only part of the Wadsworth Parkway interchange that is being rebuilt in Phase 1 due to funding constraints. These interim pieces come with additional impacts, which would result in irretrievable losses of labor, funding, energy, and materials, but may also come with additional environmental impacts, as is the case with the interim Wadsworth Parkway interchange ramp that would impact additional ditch property and the wetlands it contains. The goal is to build Preferred Alternative project elements to the ultimate configuration in any of the phases as much as possible to avoid these interim impacts.

The following general considerations will be taken into account when determining the scope of future RODs. CDOT and/or RTD will consider equity issues in the corridor and will be cognizant of the need to balance the construction of improvements throughout the corridor. If funding becomes available to local agencies, such as earmarks or private funds, projects may be identified for inclusion in future RODs. Circumstances in the corridor may change such that agreements developed during the Final Environmental Impact Statement (FEIS) process would impact the decision as to which projects to advance. These circumstances could include the realization of triggers as identified in the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

If state and/or federal funds become available, CDOT and/or RTD will identify projects to include in future RODs based on the following priorities. The first priority will be given to replacing aging infrastructure and/or addressing safety issues. The replacement of aging infrastructure will be given

priority when the infrastructure deteriorates to such an extent its conditions affect operations of the corridor or safety of the traveling public. Projects arising from safety considerations may be given priority when safety data indicate higher than average crash rates at a particular location or when a substandard area or pinch point has been identified which adversely impacts the public. Second priority will be given to projects that improve traffic operations of the managed lanes and/or the general-purpose lanes. These types of projects will be prioritized based on the degree to which they will positively impact transit and high-occupancy vehicle (HOV)/single-occupant vehicle (SOV) functions, maximize travel time savings, and relieve congestion.

In determining the scope of future phased RODs, stakeholder input will be considered via the standard Denver Regional Council of Governments (DRCOG) planning process. Additionally, as a project is advanced through the design process, input will be sought from those local agencies affected, as is typical in CDOT project planning. Stakeholder input will also be sought in accordance with agreements that were developed during the FEIS process. These agreements are detailed in Chapter 8, Phased Project Implementation, of the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

Once the projects have been identified for the next phase, the ROD will identify impacts and appropriate mitigation measures that are associated with those actions, including confirming air quality conformity for that phase.

1.3 PROPOSED ACTION – PHASE 1 OF THE PREFERRED ALTERNATIVE

CDOT, RTD, FTA, and FHWA collaborated on a process to determine the overall philosophical approach to phasing. The engineering team developed six scenarios for consideration. These scenarios were evaluated in comparison to the amount of funding in the *Fiscally-constrained Element* of the *Fiscally-constrained 2035 Regional Transportation Plan,* as amended (DRCOG 2009a), the project Purpose and Need, and input from the local jurisdictions, as described in Chapter 6, Public Involvement Program, of the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

Using issues identified in the above process, along with other elements highlighted by FHWA and FTA as the Proposed Action (Phase 1) was being developed, the following guiding principles, used in the refinement of the Proposed Action (Phase 1), were prepared.

Meet Purpose and Need

- Provide multi-modal capacity improvements.
- Ensure maintenance of existing infrastructure.

Safety

- Provide bus refuge (in the median in case of breakdowns).
- Meet standards or only have reasonable design exceptions.

Operations

- Ensure reliability of toll lanes (ability to bypass breakdowns).
- Provide enforcement (cruiser locations for managed lanes).

Maximize Investment

- Minimize throwaway or interim pieces.
- Address maintenance needs of the facility.

Preferred Alternative Committee Priorities

- Acknowledge the Preferred Alternative Committee's (PAC) priorities of the managed lane, bikeway, and Wadsworth Parkway interchange.

By combining principles listed above, Phase 1 was developed to provide benefits to the whole corridor which maximized multi-modal functions while improving safety and infrastructure in the corridor. Phase 1 consists of constructing a managed lane in each direction from Federal Boulevard to east of Foothills Parkway/Table Mesa Drive; building improvements to the Sheridan Boulevard and Wadsworth Parkway interchanges (Wadsworth Parkway is the street that crosses at the interchange, also known as the Broomfield interchange); replacement of the Lowell Boulevard and Wadsworth Boulevard bridges (Wadsworth Boulevard crosses US 36 south or east of the interchange and is sometimes called "Old Wadsworth." The Old Wadsworth bridge will be replaced in a new location at 112th Avenue); construction of a bikeway throughout the entire corridor; rehabilitating pavement, including lowering the profile to enhance clearances under bridges; widening shoulders to 12 feet, enhancing BRT stations, and installing ITS elements related to the managed lane and BRT operations.

Bridges, retaining walls, and sound walls built as a part of Phase 1 would generally be built to their ultimate Preferred Alternative size and location. However, some elements of the Preferred Alternative are in an interim location and would need to be reconstructed as future phases are completed, which would result in irretrievable losses of labor, funding, energy, and materials.

Interim pieces of the first phase have been minimized where possible. These interim pieces include:

- The bikeway from Table Mesa Drive to the South Boulder Creek Trail – the Table Mesa Drive interchange is not included in Phase 1.
- The bikeway in the South Boulder Creek floodplain – the bus-only lane is not part of Phase 1; the bikeway will be built adjacent to the road to minimize impacts to the sensitive species and habitats along that portion of the roadway.
- A small portion of bikeway along the westbound McCaslin Boulevard off-ramp – this ramp will not be built in its ultimate location in Phase 1.
- The eastbound off-ramp and on-ramp at the Wadsworth Parkway interchange – these ramps are required in Phase 1 to accommodate the new Wadsworth Parkway bridge and a new northbound Wadsworth Parkway to eastbound US 36 loop-ramp.
- The bikeway along the south side of US 36 through the Wadsworth Parkway interchange – the eastbound off-ramp and on-ramp will not be in their ultimate locations, requiring the bikeway to be reconstructed in a later phase.
- The bikeway just east of 104th Avenue – the eastbound on-ramp in this location will not be built in its ultimate location in Phase 1.

As noted above, the decision to proceed in phases was made due to federal requirements when dealing with existing funding limitations. The decision of what to include in the first phase was based on the project Purpose and Need, funding constraints, recommendations of the local jurisdictions, and the guiding principles of safety, operations, and maximizing the investment. The elements of Phase 1, including managed lanes, intersection improvements, and the bikeway, are anticipated to provide a substantial benefit to corridor users and would offset the irreversible impacts. A list of specific elements in Phase 1 and the cost by segment is provided in Table 1-1, Phase 1 Elements and Cost. Detailed maps for Phase 1 are provided in Appendix A, Maps of the Proposed Action (Phase 1).

Table 1-1: Phase 1 Elements and Cost

Element	Cost (in Millions of 2008 Dollars)
Comment Elements to All Segments Except the Denver Segment	
The managed lanes are extended from Federal Boulevard to just west of Cherryvale Road in Boulder: • Installation of ITS components related to tolling and BRT. • Increased bus service, including new bus service at Interlocken Boulevard to serve ConocoPhillips. • Installation of signal priority as appropriate for buses. • Funding for marketing and branding of buses (costs are separate from those shown in this table). • Twelve-foot inside and outside shoulders, where possible. • Four-foot managed lane buffer, where possible. (Four pinch points with reduced shoulder widths that range from 2 to 11 feet. and buffer reductions at these same points). • Four-foot center barrier. • No additional auxiliary lanes are constructed. • Existing pavement is rehabilitated. • Enhancements to the BRT stations are constructed and a new service plan implemented. • The bikeway is constructed to form a continuous connection from Boulder to Denver, but no new grade-separated underpasses are included. • TDM elements will be implemented during construction for Phase 1.	Cost is included in each segment for these elements.
Denver Segment	
None.	N/A
Adams Segment	
Mainline from Federal Boulevard to Sheridan Boulevard: • Install managed-lane tolling equipment between Pecos Street and Federal Boulevard. • Restripe westbound lanes at Federal Boulevard to extend existing managed lanes. • Replace Lowell Boulevard bridge to meet minimum vertical clearance. • Raise US 36 on both sides of the Lowell Boulevard bridge, therefore a full depth reconstruction of the pavement would occur betweeen Federal Boulevard and 80th Avenue. • Widen US 36 by replacing the thin shoulders and adding pavement to the outside from 80th Avenue to Sheridan Boulevard. Existing full depth pavement would be rehabilitated to provide more service life (hereafter called "widen mainline shoulders and rehabilitate pavement"). • Retaining walls would be constructed in the Preferred Alternative location. • Sound walls would be constructed in the Preferred Alternative location. • Bikeway would be constructed from Bradburn Boulevard to Sheridan Boulevard in the Preferred Alternative location.*	$93 (Construction) $2 (ROW) $95 Total
Westminster Segment	
Sheridan Boulevard interchange: • Widen mainline shoulders and rehabilitate pavement. • Pinch Point Number 1: Keep existing Sheridan Boulevard bridge and interchange. • US 36 needs to be lowered under the Sheridan Boulevard and 92nd Avenue bridges by full reconstruction of the pavement width and depth of the highway. • New/modified eastbound off-ramp and westbound on-ramp bus stations due to new interchange configuration. • Increased parking at existing park-n-Ride. • Retaining walls would be constructed in the Preferred Alternative location. • Bikeway would be constructed in the Preferred Alternative location. Final design will need to accommodate bikeway underpasses at both 92nd Avenue and Sheridan Boulevard.*	$91 (Construction) $26 (ROW) $117 Total

Table 1-1: Phase 1 Elements and Cost

Element	Cost (in Millions of 2008 Dollars)
Westminster Segment (continued)	
Mainline from Sheridan Boulevard to Church Ranch Boulevard/104th Avenue: • Widen mainline shoulders and rehabilitate pavement. • US 36, needs to be lowered under the Westminster Boulevard bridge by full reconstruction of the pavement width and depth of the highway. • Retaining walls would be constructed in the Preferred Alternative location. • Sound walls would be constructed in the Preferred Alternative location. • Bikeway would be constructed, part of which would be in the interim locatiion just east of 104th Avenue.*	$24 (Construction) $3 (ROW) $27 Total
Church Ranch Boulevard/104th Avenue interchange: • Widen mainline shoulders and rehabilitate pavement. • US 36 needs to be lowered under the Church Ranch Boulevard bridge by full reconstruction of the pavement width and depth of highway. • Portions of the bikeway would be constructed.*	$12 (Construction) $4 (ROW) $16 Total
Mainline from Church Ranch Boulevard/104th Avenue to Wadsworth Parkway: • Widen mainline shoulders and rehabilitate pavement. • Pinch Point Number 2: Keep existing BNSF Railway bridge and vertical alignment of US 36 with narrow width. • Pinch Point Number 3: The Old Wadsworth bridge is not replaced by 112th Avenue bridge. • Modify US 36 mainline station at 116th Avenue due to a wider US 36. • Some retaining walls would be constructed. • Portions of the bikeway would be constructed.*	$31 (Construction) $3 (ROW) $34 Total
Broomfield Segment	
Wadsworth Parkway interchange: • Widen mainline shoulders and rehabilitate pavement. • Replace structurally deficient Wadsworth Boulevard bridge at 112th Avenue location. • Construct interim Wadsworth Parkway interchange configuration. • Construct the northeast loop-ramp. • Construct the interim diamond-ramps for eastbound and westbound on- and off-ramps. • Bikeway would be constructed, part of which would be in an interim location.*	$52 (Construction) $21 (ROW) $73 Total
Mainline from Wadsworth Parkway interchange to East Flatiron Circle: • Widen mainline shoulders and rehabilitate pavement. • Some retaining walls would be constructed.	$15 (Construction) $2 (ROW) $17 Total
Superior/Louisville Segment	
Interlocken Loop interchange: • Widen mainline shoulders and rehabilitate pavement. • Widen East Flatiron Circle bridge. • Construct East Flatiron Circle ramps to improve ramp geometry and include ramp stations. • US 36 needs to be lowered under the Interlocken Boulevard bridge by full reconstruction of the pavement width and depth of highway. • Some retaining walls would be constructed. • Portions of the bikeway would be constructed.*	$36 (Construction) $6 (ROW) $42 Total
West Flatiron Circle to McCaslin Boulevard: • Widen mainline/shoulders and rehabilitate pavement. • Some retaining walls would be constructed. • Portions of the bikeway would be constructed.*	$23 (Construction) $2 (ROW) $25 Total

Table 1-1: Phase 1 Elements and Cost

Element	Cost (in Millions of 2008 Dollars)
Boulder Segment	
McCaslin Boulevard interchange: • Widen mainline shoulders and rehabilitate pavement. • Some retaining walls would be constructed. • Portions of the bikeway would be constructed.*	$15 (Construction) $6 (ROW) $21 Total
McCaslin Boulevard to Foothills Parkway/Table Mesa Drive: • Widen mainline shoulders. • Some retaining walls would be constructed. • Bikeway to Table Mesa Drive, most of which would be in an interim location because the Table Mesa Drive interchange and the bus-only lane are not in Phase 1.*	$64 (Construction) $4 (ROW) $68 Total
Totals	$456 (Construction) Total $80 (ROW) Total $536 Grand Total

Source: US 36 Mobility Partnership, 2009b.

Notes:

The totals do not equal the sum of the subtotals due to rounding.

*The bikeway would not have new grade-separated crossings in Phase 1.

BNSF = Burlington Northern Santa Fe
BRT = bus rapid transit
ITS = Intelligent Transportation System
N/A = not applicable
ROW = right-of-way
TDM = Transportation Demand Management
US 36 = United States Highway 36

Purpose and Need

Phase 1 would meet the project Purpose and Need in the following ways:

- **Transportation Need #1: Increase Trip Capacity** – the managed lane would provide additional capacity for up to 1,500 vehicles per hour.
- **Transportation Need #2: Expand Access** – the Sheridan Boulevard and Wadsworth Parkway interchange improvements would improve access to US 36 at these locations.
- **Transportation Need #3**: Provide Congestion Relief – the managed lane would allow HOVs to travel in the lane for no fee. SOVs would have the opportunity to use the lane for a fee. This function of the managed lane would reduce congestion in the general-purpose lanes as existing traffic would have an additional free-flow travel lane option to consider.
- **Transportation Need #4:** Expand Mode of Travel Options – the managed lane would provide a dedicated lane for BRT vehicles. The bikeway would provide an alternative travel mode choice as well. The managed lane would also provide an additional choice for travelers for reliable travel times and level of service.
- **Transportation Need #5:** Increase Efficiency of Transit Service – the managed lane would provide a dedicated lane for BRT vehicles and provide enhanced BRT stations.
- **Transportation Need #6:** Update Outdated Highway Facilities – four bridges would be replaced in Phase 1 that either have aging infrastructure or substandard clearances. Aging roadway surfaces would also be replaced.

Phase 1 was determined to have independent utility for the reasons described here.

The managed lane and the interchange improvements identified at Sheridan Boulevard and Wadsworth Boulevard have logical termini. The east end of the managed lane connects to the existing express lanes. On the west end, the lane ends west of Cherryvale Road, in the same configuration as the Preferred Alternative. The improvements at Sheridan Boulevard and Wadsworth Boulevard include the interchange and associated ramp, street, and intersection improvements that connect into the existing street network.

These improvements are considered to be a feasible and reasonable expenditure of funds and would meet the Purpose and Need of the project, even if no additional transportation improvements are made in the area.

The improvements proposed in Phase 1 would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements. For example, planned improvements along the Northwest Rail corridor as part of the FasTracks Program would be accommodated as part of Phase 1.

1.4 PROJECT FUNDING SCENARIO

The Phase 1 package is a *Fiscally-constrained Element* (that is, it has a probable cost equal to or less than the amount in the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended [DRCOG 2009a]). As additional funding becomes available, the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended, will be further amended and the agencies may issue other ROD(s) to implement subsequent phases, working toward implementation of the Preferred Alternative in its entirety. Construction of the bikeway would occur from west to east or as funding is identified for different segments of the bikeway.

Beyond the funding identified in the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a), for constructing the Phase 1 projects outlined in this Proposed Action (Phase 1) ROD, the collection of tolls generates a revenue stream that is estimated to cover the annual operations and maintenance (O&M) costs, and/or a portion of construction costs for the managed lanes. The Preferred Alternative, as well as the Proposed Action (Phase 1), includes managed lanes in each direction along the entire length of the project corridor.

The cost estimates developed for the Preferred Alternative used standard cost estimating conducted by CDOT and RTD. FHWA performed a Cost Estimate Review (CER), consistent with their major project guidance, for the Preferred Alternative. Table 1-2, Standard Probabilistic, and Year or Expenditure Costs, shows the standard CDOT and RTD cost estimate in addition to the 70 percent probable costs from the CER for 2008 dollars as well as in year of expenditure dollars (consistent with the revenue projections in the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended [DRCOG 2009a]).

Table 1-2: Standard, Probabilistic, and Year of Expenditure Costs

	Standard Cost Estimate (2008 dollars, millions)	CER Cost Estimate (2008 dollars, millions)	Year of Expenditure Cost Estimate (millions of dollars)
Proposed Action (Phase 1)	$536.0	$ 552.7	$999.1

Source: US 36 Mobility Partnership, 2009b.

Note:

CER = Cost Estimate Review

The available or planned funding supporting this Proposed Action (Phase 1) ROD is included in the *Fiscally-constrained Element* of the *Fiscally-constrained 2035 Regional Transportation Plan*, as amended (DRCOG 2009a), for US 36 corridor improvements. The plan lists the specific projects for which there is a reasonable expectation that funding will be available to implement.

Table 1-3, US 36 Projects in the Fiscally-constrained Element of the Fiscally-constrained 2035 Regional Transportation Plan, lists these projects and summarizes the estimated costs at the time the plan was developed.

Table 1-3: US 36 Projects in the Fiscally-constrained Element of the Fiscally-constrained 2035 Regional Transportation Plan

Category	US 36 Corridor Project	Cost Estimate[1]
Regional Roadway System: Current Projects Identified in the *2008-2013 TIP/STIP*	Reconstruct interchange at McCaslin Boulevard	$9.2
Regional Roadway System: Other Future Improvements Eligible for Future TIP Funds	Reconstruct interchange at Sheridan Boulevard	$54.0
	Reconstruct interchange at Wadsworth Parkway	$153.5
Regional Roadway System: Other Roadway Projects (Includes $187.4 Million from FasTracks)	Add managed BRT/HOV lanes: Foothills Parkway to I-25	$486.4
Other[2]	US 36 bikeway	$8.0
	Total	$711.1

Source: CDOT, 2008; DRCOG, 2009a; DRCOG, 2009b; RTD, 2008; RTD, 2009.

Notes:

[1]Values are in 2008 dollars – millions of dollars.

[2]Reasonably expected" by DRCOG but not listed as a specific project in the *Fiscally-constrained 2035 Regional Transportation Plan,* as amended (2009a).

The cost estimates provided in this table are the officially adopted values approved by the Denver Regional Council of Governments.

BRT = bus rapid transit
HOV = high-occupancy vehicle
I-25 = Interstate 25
2008-2013 STIP = *2008-2013 State Transportation Improvement Program*
2008-2013 TIP = *2008-2013 Transportation Improvement Program*
US 36 = United States Highway 36

For the Preferred Alternative and Proposed Action (Phase 1), the project costs must also include the cost to purchase tolling equipment and operate and maintain the associated tolling functions. The total estimated annual O&M and debt service costs for the Preferred Alternative and Proposed Action (Phase 1) is presented in Table 1-4, Capital and Annual Operations and Maintenance Cost Estimates for Toll Equipment. Several assumptions were made to prepare these cost estimates:

- The managed lanes in the Preferred Alternative/Proposed Action (Phase 1) would be operated by the Colorado Tolling Enterprise (CTE) recently reformed and renamed the High Performance Transportation Enterprise, the successor entity to the CTE or a similar organization.

The Preferred Alternative is assumed to have seven toll collection sites each direction for a total of 14 locations.

Table 1-4: Capital and Annual Operations and Maintenance Cost Estimates for Toll Equipment

Managed/Toll Lane Component	Preferred Alternative[1]
Number of Transaction Sites	14
Capital Costs for Tolling Equipment	$18.5
Annual Debt Service on Capital Equipment (20 Years at 6%)	$1.6
Managed Lane Operations and Toll Equipment Maintenance ($100,000 per Site)	$1.4
Toll Violation Enforcement	$0.2
Subtotal	*$3.2*
Contingency (5%)	$0.2

Source: CTE, 2009.

Notes:

[1]Values are in millions of dollars.

Total estimated annual O&M costs in addition to the capital costs equals $3.4 million.

A 5 percent contingency was added to all costs.

% = percent
O&M = operations and maintenance

The estimated capital cost for tolling equipment on the corridor is $18.5 million for the Preferred Alternative/Proposed Action (Phase 1). Included in that estimate are the cost for sign bridges, variable message signage (VMS), fiber, cameras, tag readers, and lane controllers. The estimate relies on assumptions and equipment needs outlined for an Urban Partnership Agreement proposal submitted in 2008.

- Enforcement costs of $150,000 per year are estimated for the managed lanes (projected from actual per mile cost of enforcement on I-25 express lanes).
- For each toll transaction site (overhead gantry or similar), $100,000 per year for operations such as toll collection, toll equipment maintenance, and processing (projected based on actual I-25 express lane contract with E-470 for the same services which involves four toll collection sites at $100,000 per year cost for each site).
- Capital tolling equipment would be purchased upfront utilizing a loan from CDOT. The loan would be repaid over 20 years at a 6 percent interest rate resulting in an annual debt service payment of $1.6 million for the Preferred Alternative. Total annual costs for toll equipment and managed lane O&M are estimated to be $3.4 million for the Preferred Alternative. As described below, it is expected that those costs would be fully offset by toll revenues collected.

Managed Lane Revenue

The Preferred Alternative and the Proposed Action (Phase 1) present the opportunity for revenue generation through tolling as well as providing an opportunity for substantial travel time savings within the managed lanes (for more information on operational impacts, see Chapter 3, Transportation Impacts and Mitigation) of the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a).

Toll collection from the managed lanes would generate a revenue stream that could be used toward operating and maintaining the tolling equipment, bonding and, to the extent that there is excess, some portion of the capital construction costs. At this time, toll revenues are proposed only to cover the annual costs of purchasing, operating, and maintaining the toll-related equipment and operations. Beyond that, excess toll revenue, if it occurs, could be used for other programs such as long-term TDM.

Chapter 5, Financial Analysis, of the *US 36 Corridor FEIS* (US 36 Mobility Partnership 2009a), covers the analysis and assumptions used to determine that the toll revenues expected along this corridor should meet the predictions discussed above.

The managed lanes presented in the Preferred Alternative and Proposed Action (Phase 1) provide long-term reliability in that the pricing mechanism allows CDOT to manage the level of congestion in the managed lanes. By managing the level of congestion in the lanes, the travel time within the managed lanes can be kept at a consistent speed well above the adjacent congested general-purpose lanes. If congestion increases to the point that travel time is reduced, tolls can be raised to effectively reduce demand, easing congestion in those lanes, and again providing a reliable travel time in the managed lanes. This adaptive toll approach can sustain the effectiveness of this package well beyond the 20-year traffic projections used in this analysis.

Bus Operating Costs

Annual bus operating costs were estimated at $61 million, or a $13 million increase over Package 1 (No Action).

Projected Transit Revenue

Transit fare box revenue could be used to offset the annual O&M costs for bus operations. RTD does not directly apply fare box revenue received to each corridor operation; however, some amount of fare box revenue would likely be used to offset the annual O&M costs. Fare box revenues make up approximately 15 to 20 percent of RTD's annual budget. District sales tax and other sources go toward the balance of operating costs for the RTD system.