Cole Road; I-84 to Franklin Concept Design
Concept Report
ACHD Project No. 811004.011
November 2012
Submitted to
Ada County Highway District
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Project Description / Purpose & Need

The Cole Road, I-84 to Franklin Road project (ACHD Project No. 811004.011, GIS No. RD207-16) is a conceptual analysis to evaluate and identify options for widening Cole Road between Franklin Road and the I-84 interchange westbound off-ramp. Cole Road and Franklin Road are significant roadways within Ada County that provide interstate access as well as access to many of the largest regional retail shopping centers in the State of Idaho. See Figure 2 on the following page for the project limits of the Cole Road, I-84 to Franklin Road project.

The purpose of the project is to increase capacity, improve safety for all users (motorists, pedestrians, and bicyclists), and accommodate forecasted traffic on Cole Road between I-84 and Franklin Road, and at the intersection of Franklin Road and Cole Road.

Current insufficiencies along Cole Road, including uncontrolled access at certain intersections and an inadequate number of thru lanes, along with future traffic demands indicate the existing two-lane roadway will not efficiently serve the projected demand. Improvements to Cole Road are needed to ease congestion, and to improve safety, traffic operations, and access management.

During the Concept Design phase of the project, a concept level design was prepared, which included the roadway typical sections, roadway alignment, Cole Road / Franklin Road intersection improvements, storm drainage requirements, and right-of-way needs throughout the corridor limits. The project incorporated several elements including stakeholder engagement and public outreach, a scan of environmental resources, traffic analysis, drainage analysis, and roadway alternatives development and evaluation (Figure 1). Based on the evaluation process, a recommended alignment was selected and conceptual plans have been prepared.

Upon completion of the Concept Study, the Ada County Highway District (ACHD) will proceed with design and construction as funding allows. At the time this Concept Report was prepared, improvements along this segment of Cole Road were scheduled in ACHD’s Five-Year Work Plan (2013-2017) for design beginning in 2015, right-of-way acquisition in 2016, and construction in Preliminary Development (unplanned; ACHD may spend money on the project, but has no firm construction date).
Figure 2. Project Area
Existing Conditions

Cole Road, within the project limits, is a three-lane arterial roadway, including one thru-lane in each direction, one two way left-turn lane, and dedicated bike lanes with attached curb, gutter and sidewalk. Cole Road widens to include additional turning lanes as it approaches both the Franklin Road Intersection and the I-84 Interchange westbound off-ramp. The 2011 average daily traffic volumes on Cole Road within the project limits range from approximately 22,500 to 40,000 vehicles per day.

Franklin Road, within the project limits, is a five-lane arterial roadway that includes two thru-lanes and one two-way left turn lane (auxiliary lane), and widens to include additional turning lanes at the Cole Road eastbound approach and the I-184 interchange on/off-ramps. The 2011 average daily traffic volumes on Franklin Road within the project limits range from approximately 17,000 to 35,000 vehicles per day.

The project area is almost entirely built-out. North of the Cole Road / McMullen Street intersection, the majority of existing land uses are commercial, with the exception being the Boise Language Academy (currently non-operational). South of the Cole Road / McMullen Street intersection, the existing land use is a mixture of residential properties, commercial properties, and places of religious worship.

Additional project site features include the Union Pacific Railroad (UPRR) corridor, which runs east-west directly north of Franklin Road, and the Farmers Lateral Canal owned and maintained by Nampa and Meridian Irrigation District. This irrigation canal flows from the east to the west and is located approximately 700’ north of the Cole Road / McMullen Street signalized intersection.

There are four signalized intersections within the project limits located at the Franklin Road / I-184 interchange, Cole Road / Franklin Road intersection, Cole Road / McMullen Street intersection, and the Cole Road / I-84 interchange. The Franklin Road / I-184 interchange and Cole Road / I-84 interchange intersections are owned and operated by the Idaho Transportation Department (ITD). In addition to the signalized intersections, there is a pedestrian crossing signal near the Cole Road / Colonial Street intersection.

Challenges to widening Cole Road within the project area include:

- Impacts to adjacent property owners & neighborhoods
- Farmer’s Lateral Canal crossing
- Utility relocations
- Business and residential access
- Cole Road / McMullen Street offset intersections
- Topography (hill north of McMullen Street)
- Widening the roadway on Union Pacific Railroad property

Cole Road is currently a three-lane facility with traffic volumes ranging from 22,500–40,000 vehicles per day.
Proposed Improvements

Typical Section

The proposed roadway section for Cole Road was developed using ACHD’s Master Street Map and Livable Street Design Guide criteria along with input from ACHD and the City of Boise. The Livable Street Design Guide standard was adopted by ACHD in May 2009 as a tool to define how the transportation system integrates into the communities it is intended to serve. The standard residential arterial section was selected as the preferred roadway template for Cole Road; a five lane section, with dedicated bike lanes, curb and gutter and detached sidewalks with a total right-of-way width as 97’. Other sections were considered, however this section was determined to be the best preliminary alternative template as it minimizes adjacent parcel impacts.

During development of the project, two changes were made to the residential arterial section as defined in the Livable Street Design Guide: the center median/turn lane was reduced from 13’ to 11’ and the standard 6’ buffer between the back of curb and the sidewalk was removed. This buffer is intended to allow for landscaping and roadside trees. These buffers, should they be landscaped, would be maintained by the City of Boise, not ACHD. Currently, the City of Boise has expressed concern regarding available funding for maintaining a landscaped buffer on Cole Road. With these concerns, the typical section was revised for the second public open house to remove the buffer and instead show a 7’ attached sidewalk with the right-of-way 1’ beyond the back of sidewalk. The 97’ section was reduced to 85’ with the removal of the buffer and reduction of the center median/turn lane width. The 85’ typical section is shown in Figure 3.
Alternatives Identification and Evaluation

Cole Road

During the early stages of the concept design, three alignment alternatives for Cole Road were developed and evaluated based on the typical section indicated in Figure 3. The alternatives evaluated included a centerline alignment, west shift alignment, and east shift alignment. The centerline alignment alternative maintained the existing centerline of Cole Road, and widened to both the east and west. The west shift alignment alternative was developed by retaining the existing curb, gutter and sidewalk location along the east side of Cole Road (between Althea Court and McMullen Street). The east shift alignment alternative was developed by retaining the existing curb, gutter and sidewalk along the west side of Cole Road (between Althea Court and McMullen Street).

All three alignments assumed widening to an 85’ typical section accommodating four travel lanes, a center median/turn lane, bike lanes and sidewalk, as shown in Figure 3. This configuration, included in all widening options, accommodated the congestion relief, improved safety, and access management goals ACHD had established for the project.

All three alternatives met the goals established for the project, and therefore, each alternative was evaluated primarily on property impacts, utility relocations, construction staging, project cost, and the ability to tie into existing infrastructure at the corridor limits. The alternative selected as preferred would be the alternative with the least amount of impacts along the corridor while still accommodating the 85’ footprint.

All three alternatives (investigated at the concept level) impacted the same seven existing single family residence properties on the east side of Cole Road, between McMullen Street and Ashland Drive. These seven properties would be complete acquisitions with each of the alternatives; one of which is currently owned by ACHD.

The centerline widening alternative impacted properties on both sides of the roadway in addition to the seven single family residence properties along Cole Road. This alignment also required a new retaining wall at the Intermountain Gas property, may impact the potentially historic structure (currently unlisted) on Intermountain Gas property, and added construction staging challenges.

The east shift widening alternative impacted only the seven single family residence properties along Cole Road and potentially impacted the overhead power lines on the east side of Cole Road.

The west shift widening alternative impacted properties on both the east and west sides of the roadway (in addition to the seven single family residence properties along Cole Road), required a new retaining wall at the Intermountain Gas property, potentially impacted the overhead power lines on the east side of Cole Road and may impact the potentially historic structure on the Intermountain Gas property.

During the analysis it was evident both the centerline widening and west shift widening alternatives had significantly more property impacts in comparison to the east shift alternative. In contrast, all of the identified alternatives, centerline, west and east, provide similar safety benefits.
Therefore, the centerline and west shift alternatives were removed from further evaluation and the east shift alternative was selected as the preferred alternative. Upon selection of the east shift preferred alternative, the alternative was refined to minimize impacts. The refined east shift alternative was the only alternative shown to the public at the first and second public open houses because it had been determined prior to the first meeting that the centerline and west shift alternatives did not warrant additional analysis. The public was asked at both meetings if they supported the alignment shown. At the first meeting, 83% of the comments received supported the alignment. The second public open house indicated 79% of comments received supported the east shift alternative. Members of the project team met with many business owners along the corridor who also indicated support for the east alignment alternative. Based on this input, the recommended alternative for Cole Road is the east shift alignment between I-84 and Franklin Road.

**Cole Road / McMullen Street Intersection**

Currently, the McMullen Road connections to Cole Road are offset intersections, separated by approximately 100’. This offset creates a skewed intersection, which is a safety hazard that has resulted in several crashes (see Appendix C for detailed crash history). The proximity of the signal at Cole Road / W. McMullen Street with respect to the Cole Road / E. McMullen Street poses significant challenges for westbound and southbound left turning vehicles.

In addition to the Cole Road widening alignment, alternatives were developed to realign the Cole Road / McMullen Street intersection to improve the existing access and provide a safer, more effective intersection configuration. Three different options were created:

- West option realigns the west portion of McMullen to line up with the east leg
- East option realigns the east side of McMullen to line up with the west leg
- Roundabout option

All three intersection option footprints were laid out and analyzed for construction costs and property impacts. Conceptual cost estimates (including construction and right-of-way acquisition costs) were $850,000 for the west option, $1,250,000 for the east option, and $1,100,000 for the roundabout option. The roundabout option had more property impacts, higher costs for land and construction, and was not supported by the public; therefore, a lifecycle cost analysis was not conducted. The east option was the most expensive and impacted more properties than the west. The west option was the least expensive to construct and limited property impacts to adjacent residences, and was therefore selected as the preferred option for the intersection.

The three Cole Road / McMullen Street intersection options were presented at the second public open house, in which 63% of the comment forms received supported the west option. Therefore, the recommended alternative for the Cole Road / McMullen Street realignment is the west option. This option is consistent with the input received from Intermountain Gas Company through the stakeholder process. Intermountain Gas agreed to allow acquisition of their frontage to align the existing east leg with the new west leg to minimize impacts to other adjacent property that may require full acquisition.
Cole Road / Franklin Road Intersection

The Cole Road / Franklin Road intersection currently performs at a LOS E, with approximately 70 seconds of delay. An evaluation was conducted to determine the recommended future lane configuration based on the anticipated 2035 travel demands and 5-lane Cole Road section. A 7x7 intersection configuration (see sidebar) was recommended based on the 2035 traffic projections. This configuration meets all anticipated 2035 traffic demands for turn bay length needs with the exception of the eastbound Franklin Road left turn lanes. Based on the proximity to the Franklin Road / I-184 Interchange turn lane, the eastbound left on Franklin Road does not meet future capacity needs. The high cost of relocating the Franklin Road / I-184 EB off-ramp signal is not justifiable for the extra capacity; therefore additional delays may be experienced for this leg by the year 2035. The development of an additional left turn lane, as proposed, maximizes the physical space available to accommodate this turn movement. See the Traffic Analysis section of this Concept Report (below) for additional traffic information or Appendix C for the entire Traffic Analysis.

Stakeholder Involvement

The Cole Road Concept Design project included a variety of forums to ensure all affected and interested parties were provided an opportunity to offer input on the project. Community outreach included one-on-one meetings with property and business owners along Cole and Franklin Roads, coordination with local jurisdictions, meetings with affected utilities and services, and two public open houses. The meetings were intended to receive project input, identify key issues and concerns, receive suggestions, and keep stakeholders informed about the progress of the project.

Contact Information Mailer

Early coordination and open communication with property owners and/or business owners along the corridor was instrumental in developing project alternatives for widening Cole Road within the project area. An informational postcard was mailed to approximately 90 properties with direct access to Cole Road and Franklin Road within the project limits. Utilizing Ada County Assessor records, mailers were sent to both property owners and tenants whenever possible. The postcard gave a brief overview of the project and requested contact information from the property owner and/or tenant if they desired to be contacted during the project. Twenty six responses were received and a copy of the Stakeholder Database with property owner and/or tenant information can be found in Appendix A.

Appendix A contains information summarizing the public involvement process including Record of Communication forms from each business / property owner meeting and comments received at the public open houses.
Property Owner Meetings

Based on the input received from the information mailers, multiple one-on-one meetings were conducted with property owners and/or businesses along Cole and Franklin Roads. Meetings were held with the Union Pacific Railroad (UPRR), Larry Miller Dodge, SVN Franklin, Jackson’s, Calvary Baptist Church, Harrison Hotel, Valley Regional Transit (VRT), and Intermountain Gas. The meetings were held to introduce stakeholders to the project, note their issues, concerns, and thoughts about the project, and answer questions. Most importantly, these meetings helped the design team gain an understanding of adjacent business access needs and concerns as the access management strategy was developed for the corridor. A Record of Communication (ROC) form from each meeting is included in Appendix A.

The meetings with the UPRR, VRT, and Intermountain Gas also served to initiate discussions to determine how the proposed improvements could impact their facilities along Cole and Franklin Roads. Items discussed and input received as a result of the meetings is documented in the ROC in Appendix A.

Public Open Houses

ACHD hosted two public open houses during the Cole Road Concept project. The first meeting introduced the project, displayed initial project alternatives and sought input on the project and initial alternatives including the roadway alignment and access management strategies (medians, access, u-turns at intersections, etc). The second meeting described the input received from the first meeting and changes to the alignment based on that feedback. Copies of the public open house display boards presented during the open houses, sign-in sheets, and comment forms are provided in Appendix A.

Public Open House #1 – August 11, 2011

The first open house was held on August 11, 2011. Forty-two people signed in at the meeting and 36 comment forms were received. Information presented to the public included displays that explained the project, provided a project timeline and presented the conceptual roadway improvements. Other information presented included access management, existing and projected traffic volumes, and crash history within the project area. Copies of all display boards were available on ACHD’s website, along with a project Frequently Asked Questions sheet and comment form, all of which are included in Appendix A.

A comment form was available both in hard copy and online. Attendees were encouraged to submit any and all comments in order for ACHD and the design team to incorporate comments into future alternatives and discussions. The comment form requested
feedback as to whether or not attendees approved or disapproved of the proposed alignment option for Cole Road. In general, the public was in favor of the proposed alignment option to widen Cole Road. Thirty people responded to the question, with 83% agreeing with (25 of the 30 responses) the alignment footprint shown at the meeting. Many comments received indicated that the proposed improvements would provide better traffic flow along Cole Road. Those that disagreed cited increased traffic and noise concerns.

In addition to whether attendees approved or disapproved of the proposed alignment, they were also asked whether they agreed or disagreed with the proposed access management (median locations, turning movements, etc.). Twenty-one people responded to the question, with 62% agreeing with the proposed access management considerations (13 of the 21 responses). Comments received from those that agreed with the proposed access management cited difficulty in accessing properties off of Cole Road, and a desired improvement for access to and from the side streets off of Cole Road.

The comment form also provided the opportunity for written general comments associated with the project. Fourteen general comments were received. Among those comments, multiple citizens expressed concern about the safety of the existing Cole Road / McMullen Street intersection.

Several responses indicated people did not approve of the roundabout option for McMullen and other comments expressed concern that the project would have a negative impact on the adjacent neighborhoods. Appendix A contains the sign-in sheets and comment forms from the first public open house.

Public Open House #2 – December 8, 2011

A second public open house was conducted on December 8, 2011. Thirty-nine citizens signed in at the meeting and 36 comment forms were received. Informational boards displayed the status of the project, changes to the alignment based on the comments received at the last public open house, and the preferred alignment on plan boards. In addition, three alternatives were shown for realigning the Cole Road / McMullen Street intersection: East Shift, West Shift, and Roundabout (see page 9 of this document for more information on the Cole Road / McMullen Street alternatives). Copies of all display boards were available on ACHD’s website, along with a project Frequently Asked Questions sheet and comment form, and are included in Appendix A.

A comment form was available for attendees at the meeting, and for a two-week period after the meeting. Attendees were encouraged to submit any and all comments in order for ACHD and the design team to discuss feedback and modify the alignment, if necessary. The comment form asked the public if they approved or disapproved of the proposed alignment option for Cole Road. Thirty-three people responded to the question, with 79% in favor of the proposed alignment improvements (26 of the 33 responses).

In addition to whether attendees approved or disapproved of the proposed alignment, they were also asked which of the three options for the Cole Road / McMullen Street they most supported. Thirty-two people responded to the question, with 63% preferring the west option (20 of the 32 responses). Six responses indicated support for the roundabout, and six supported the east option.
Similar to the previous open house, the comment form provided the opportunity for a written response for any general comments. The general comments received included feedback which indicated:

- the project is long overdue and needs to be done
- the project will help ease congestion
- current traffic along Cole Road does not appear to be an issue and the project is unnecessary
- the Cole Road / McMullen Street intersection should be completed as soon as possible, even if it’s prior to the widening of Cole Road
- concern for property impacts along the corridor, and suggestions to revise the access at Ashland and Brentwood

Appendix A contains the sign-in sheets and comment forms from the second public open house. Based on the public involvement process and revisions to the alignment alternative from the input received, the final preferred alignment alternative (east shift) was supported by over 75% of those who submitted comments at the second public open house.

Design Considerations

Traffic Analysis

A Traffic Analysis was completed to review the existing traffic conditions throughout the project limits and to identify improvements that sufficiently accommodate the anticipated needs through 2035. Based on the analysis (included in Appendix C), the following is recommended:

- **Cole Road** – Development of a 5-lane facility. Although a 7-lane facility may be warranted based on the Florida Department of Transportation (FDOT) planning level thresholds, other factors, such as adjacent land use and the cost to obtain said property, makes development of a 7-lane facility economically undesirable.
- **Franklin Road / I-184 Interchange** – No improvements. The current configuration that exists today sufficiently accommodates the anticipated 2035 PM Peak Hour traffic demand.
- **Franklin Road / Cole Road Intersection** – Reconstruct as a 7x7 intersection for all legs to accommodate the projected 2035 PM Peak Hour capacity needs.
- **Cole Road / McMullen Street Intersection** – Reconstruct as a 4-leg controlled intersection. Based on the re-configured and re-distributed 2035 traffic volumes, either a signalized intersection or roundabout treatment can sufficiently accommodate the anticipated demand.
- **Cole Road / I-84 Interchange** – Coordination with the Idaho Transportation Department (ITD) needs to occur prior to identifying any potential improvements. The intersection does not meet PM peak hour condition requirements, due in large part to the substantial westbound left turning traffic from Cole Road on to I-84 and I-184. Additional improvements would be required to accommodate the PM peak hour traffic demand.
**Access Management**

One of the primary goals for improving Cole Road is to improve safety of vehicles and pedestrians and provide safe access to adjacent neighborhoods and businesses. Currently, most access points along Cole Road are unrestricted which allows vehicles to conduct all movements (right-in/right-out, and left-in/left-out) to and from the access street or driveway onto Cole Road. This type of access increases the number of conflict points for opposing vehicle movements and degrades the overall efficiency of the network as vehicle trips increase over time. In addition, the increased conflict points at unrestricted intersections increase the potential for accidents. Reconfiguring these accesses to reduce conflict points assists in improving roadway capacity.

Access management reduces traffic congestion and improves safety by consolidating and separating access points so that opposing movements occur at fewer locations. This allows drivers passing through an area to predict where other drivers and bicyclists will turn and cross, and also provides space for turn lanes.

National criteria indicate non-traversable medians are increasingly safer than roadways with a two-way left turn lane when volumes exceed 24,000 – 28,000 vehicles per day. The 2011 average daily traffic volumes on Cole Road within the project limits range from approximately 22,500 to 40,000 vehicles per day. For this reason, one access management approach being selectively utilized is the installation of a center median to replace the existing two-way left turn lane throughout the Cole Road corridor. Benefits of the medians include:

- Fewer roadway delays and better traffic flow
- Safer travel to businesses
- Properly designed entrances shared by multiple businesses, which may allow more site area for parking
- Improved service road access, including Colonial Street and Beechwood Drive, will allow customers to enter and exit businesses conveniently and safely, away from the faster moving thru-traffic associated with Cole Road and Franklin Road
- Improved internal connections between businesses within the Franklin Business Park
- Driveways and service road entrances farther away from signalized intersections

To minimize out of direction travel as a function of the proposed medians, U-turn movements were recommended at multiple signalized and unsignalized intersections within the project corridor including Franklin Road, McMullen Street, Brentwood Drive, and the I-84 westbound on-ramp. The majority of private access points with direct access to Cole Road will be restricted to right-in/right-out (RIRO). The out-of-direction travel will be minimized with the U-turn allowances and will not exceed 0.5 mile in any scenario along the corridor. The table on the following page provides a summary of all the intersections within the project area, the existing access control and the proposed access control.

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**Parametrix**

Committed to Service
### Intersection Location

<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Existing Access</th>
<th>Proposed Access Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cole Road / Overland Road</td>
<td>Unrestricted</td>
<td>Unchanged</td>
</tr>
<tr>
<td>Cole Road / I-84 On Ramp</td>
<td>Unrestricted</td>
<td>Unchanged*</td>
</tr>
<tr>
<td>Cole Road / Brentwood</td>
<td>Unrestricted</td>
<td>Unchanged*</td>
</tr>
<tr>
<td>Cole Road / Althea Court</td>
<td>Unrestricted</td>
<td>Restricted - RIRO</td>
</tr>
<tr>
<td>Cole Road / Ashland Drive</td>
<td>Unrestricted</td>
<td>Restricted - RIRO</td>
</tr>
<tr>
<td>Cole Road / Camas Street</td>
<td>Unrestricted</td>
<td>Unchanged</td>
</tr>
<tr>
<td>Cole Road / Hummel Drive</td>
<td>Unrestricted</td>
<td>Restricted - RIRO</td>
</tr>
<tr>
<td>Cole Road / McMullen Street (South T-Intersection)</td>
<td>Unrestricted</td>
<td>Unchanged and Realigned*</td>
</tr>
<tr>
<td>Cole Road / McMullen Street (North T-Intersection)</td>
<td>Unrestricted</td>
<td>Unchanged and Realigned*</td>
</tr>
<tr>
<td>Cole Road / Colonial Street</td>
<td>Unrestricted</td>
<td>Unchanged</td>
</tr>
<tr>
<td>Cole Road / Thunderbolt Drive</td>
<td>Unrestricted</td>
<td>Restricted – RIRO</td>
</tr>
<tr>
<td>Cole Road / Franklin Road</td>
<td>Unrestricted</td>
<td>Unchanged*</td>
</tr>
<tr>
<td>Cole Road / Bethel Street</td>
<td>Unrestricted</td>
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<tr>
<td>Franklin Road / Beechwood Drive</td>
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<td>Restricted - RIRO</td>
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<tr>
<td>Franklin Road / Auto Drive</td>
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<td>Franklin Road / I-184 Off Ramp</td>
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<td>Colonial / New Commercial Access #1</td>
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<tr>
<td>Beechwood Drive / New Commercial Access #2</td>
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<td>Full</td>
</tr>
</tbody>
</table>

*Recommended U-turn allowances
RIRO = Right-in / Right-out

In addition to the center median installation along Cole Road, a second access management approach of combining existing commercial driveway approaches is used to reduce the number of overall access points in the corridor and improve safety. A graphic displaying the proposed Access Management for the project is included in Appendix C. The specific locations with revised connections include:

- **Camas Street / Cole Road Intersection (Calvary Baptist Church)** – The existing commercial access point connecting to Camas Street in the southwest quadrant will be removed.

- **Camas Street / Cole Road Intersection (Jackson’s Food Store)** – There is currently no access control along the Cole Road or Camas Street frontage for the parcel at the northwest quadrant. A single commercial access is being proposed on Cole Road and a reduced commercial access will be provided on Camas Street.

- **Cole Road near Colonial Street (Boise Language Academy)** – The commercial approach from the Boise Language Academy onto Cole Road will be removed. The existing access to this facility along Colonial Street will be retained.

- **Cole Road near Thunderbolt Drive (Auto Mall entrance)** – The commercial approach with direct access to Cole Road from the Larry Miller Honda facility will be removed and potentially replaced with a new commercial approach near the southern limits of the parcel (location to be determined – requires property owner approval).
- **Colonial Street near Cole Road (SVN Franklin Business Park)** – A new, north side, commercial approach will be added approximately 150’ east of Cole Road.
- **Cole Road / Franklin Road Intersection (currently a parking lot)** – The existing commercial accesses at the southwest quadrant of the intersection that fall within the proposed intersection area of influence footprint will be removed.
- **Franklin Road near Beechwood Drive (east of SVN Franklin Business Park)** – The existing commercial access on the south side of Franklin Road just west of Beechwood Drive will be removed.
- **Beechwood Drive (SVN Franklin Business Park)** – A new, west side, commercial approach will be added approximately 150’ south of Franklin Road.
- **Cole Road south of Thunderbolt Drive (At Harrison Hotel)** – A potential connection between Auto Drive and Cole Road has been identified near the south end of Auto Drive, just north of the Harrison Hotel. This connection has been identified as a potential connection, and will require coordination with property owners.

### Geotechnical Investigation

Geotechnical field exploration and associated laboratory testing was completed to determine percolation rates at the location of the proposed storm drainage storage facilities. A soil boring was taken on the west side of Cole Road, near the Cole Road / Colonial Street intersection. This soil boring was taken to 18’ deep, and no groundwater was encountered. See Appendix D for the geotechnical boring log.

Geotechnical investigations conducted within the project area support the preferred stormwater solution for the northern portion of the corridor (pond type facility located on the Union Pacific Railroad property north of Franklin Road).

### Drainage

A concept drainage report was completed to verify existing drainage facilities within the project limits, and develop stormwater storage options for the project (Appendix E). The existing Cole Road corridor between I-84 and Franklin Road is currently in a developed urban condition. Curb and gutter with attached sidewalks align both sides of the streets. As such, there is a fully developed existing storm drainage system throughout the corridor.

Generally speaking, Cole Road can be considered two separate drainage basins. The southern portion of Cole Road, from approximately the McMullen Street / Cole Road intersection through the southern limits of the project, drains to a storm drain system within Cole Road. Additionally, stormwater from a large offsite area (both east and west of Cole Road) is conveyed to the storm drainage system within Cole Road. These storm flows are piped and outlet to the Wye pond west of Cole Road.
The southern portion of Cole Road is a small part of the drainage basin that flows to the system within Cole Road. Because of this, the existing system within Cole Road should be retained. The concept drainage report recommends constructing an on-site stormwater facility that is sized to accommodate the increase in impervious area for Cole road only, and keep the existing system in place.

An underground stormwater chamber is the recommended facility for the southern portion of Cole Road. An underground stormwater chamber was selected because the land near the south portion of the project is built out, and does not have any logical pond sites. Additionally, an underground stormwater chamber could be constructed within the right-of-way needed for the construction of the roadway, and not require any additional right-of-way acquisition.

The northern portion of Cole Road, from the Cole Road / McMullen Street intersection to the Cole Road / Franklin Road intersection flows to a storm drainage system within Cole Road. The existing system does not meet current ACHD drainage standards. For example, there is one inlet for over 2,000’ of roadway on the west side of Cole Road. Storm flows from Cole road enter a piped storm drainage system, and flow west, to a system (12” pipe) on the north side of Franklin Road. This system flows westerly, beyond the limits of the project. Early in the project, it was assumed stormwater from Cole Road eventually flowed to the pond located at the Franklin Road / I-184 interchange, however based on field reviews no outlet to the pond was found.

With the current drainage system for Cole Road and the surrounding area not meeting current ACHD drainage standards, it is recommended to construct a stormwater facility onsite for storm flows generated within the limits of the project. This eliminates the need to reconstruct the existing storm drainage system beyond the limits of the project, and improves the capacity of the existing storm drain system downstream of the project. The recommended stormwater facility for the northern portion of Cole Road is a pond type facility to be located on the UPRR property, immediately north of Franklin Road. This recommendation was supported by both ACHD and the City of Boise as the preferred stormwater solution. Should the UPRR not permit a stormwater facility on their property, a pond located on the empty lot immediately north of the Harrison Hotel has been proposed as the alternative north drainage basin facility.

Irrigation Facilities

A field review was performed to identify the existing irrigation facilities within the limits of the project. During the field review three irrigation facility/systems were located along the Cole Road corridor. The first facility is located approximately 100’ north of the railroad crossing (200’ north of Franklin). An irrigation box is located on the west side of Cole Road. No other irrigation structures/facilities were identified in the vicinity south of this box; therefore it is believed that the irrigation system is connected to the north.

The second irrigation facility is the Farmer’s Lateral Canal (owned and maintained by the Nampa and Meridian Irrigation District) which is located mid-way up the bench just north of Intermountain Gas. The canal crosses Cole Road in a sizeable box culvert (12’ wide and 4’ tall). The facility is currently identified to be replaced and will be replaced with this project.

Appendix E contains the Concept Drainage Report for the corridor which includes information on existing facilities, recommended facilities, and stormwater calculations.
The third irrigation system enters the project from the east near McMullen Street at the top of the hill. The irrigation system crosses to the west side of Cole where there are multiple diversions. One line flows southerly along the west side of Cole Road for approximately 550’ before turning west at Camas Street. Any street widening of Cole Road would necessitate the relocation of the irrigation diversion boxes and line just described.

Letters were sent to the Nampa and Meridian Irrigation District, New York Irrigation District, Boise-Kuna Irrigation District, and the Boise Project Board of Control. The letter explained the intent of the project, asked that the irrigation districts verify if they had facilities within the project limits, and asked for irrigation flow rates and/or design criteria. The Nampa and Meridian Irrigation District responded that the Farmer’s Lateral Canal needs to carry 50 cubic feet per second (cfs) at Cole Road, and the crossing needs 1’ of freeboard.

A Bridge Alternate Study was prepared for the Farmer’s Lateral Canal structure. Based on design criteria provided by the Nampa and Meridian Irrigation District, the existing box culvert could not be extended, as it did not provide the recommended 1’ of freeboard. The Bridge Alternate Study recommends a four sided concrete box culvert, 12’ wide, 4’ tall and 100’ long. See Appendix F for the Bridge Alternate Study.

Utilities

Utility relocations will be necessary within the project limits. Utilities were not field located as part of the project; however utility facility plans were provided and utilized throughout the concept design process. Existing utilities within the project limits include gas, cable, fiber optic, telephone, potable water, storm drain, sanitary sewer, on-street lighting and overhead power. Additionally, Idaho Power facilities include large transmission lines running along the north side of Franklin Road, and service lines along the east side of Cole Road, which may require relocation.

Environmental Scan

An Environmental Scan Technical Memorandum (Appendix G) was prepared to identify the environmental constraints within the project study area and to identify any environmental concerns the proposed improvements may impose. The environmental scan looked at relocations and displacements, parks and recreation areas, cultural and historic resources, known/suspected hazardous materials, and threatened and endangered species. Letters were sent to the United States Fish and Wildlife Service and the State Historic Preservation Office explaining the project.

There were no significant environmental concerns identified in the environmental scan. The Idaho State Historical Society recommended a Historic Properties survey of the project area, with a report that would include a completed Historic Sites Inventory Form for any structures over 45 years old. The environmental scan also recommends coordination with the Idaho Department of Environmental Quality (IDEQ) regarding possible locations of underground storage tanks.
Pedestrians

Cole Road currently has 5’ attached sidewalks along both sides of the road from the northern project limits to the I-84 westbound on-ramp. Franklin Road only has sidewalk along the southern side of the roadway. The north side of Franklin Road does not have any existing sidewalk as it is located within the existing UPRR corridor right-of-way footprint.

Pedestrian crossings currently exist at the Cole Road / Franklin Road signalized intersection, the pedestrian signal north of the Harrison Hotel (south of Colonial), the Cole Road / McMullen Street signalized intersection, as well as the I-84 / Cole Road signalized intersection.

The only existing identified breakdown with the pedestrian network can be attributed to the lack of sidewalk along the north side of Franklin Road. Large transmission power lines and the UPRR reside along the north side of Franklin Road throughout the project limits. In addition, the UPRR owns the right-of-way where sidewalk would be placed along the north side of Franklin Road.

Bicycles

Currently, there are dedicated bike lanes along both sides of Cole Road from Thunderbolt to the I-84 WB on-ramp. The bike lanes along Cole Road terminate just south of the Franklin Road / Cole Road intersection and begin north of Denton Street. The north-south bike facility terminates at the Cole Road / Emerald Street intersection.

Dedicated bike lanes are not currently located along Franklin Road. In reviewing the ACHD Roadways to Bikeways Map, there is only one small portion of multi-use pathway north of Franklin Road, between Milwaukee and Cole Roads.

The widened section proposed for both Franklin and Cole Roads include dedicated bike lanes on both sides of the roadway, as well as sidewalks, per ACHD’s Livable Streets Design Guide. However, this section of Franklin Road does not currently have bike lanes and recent improvements to other sections of Franklin Road have not included bike lanes. If bike lanes along Franklin Road are not included in the preferred alignment during the design, the ROW width may be adjusted. However, for this Concept Design, the full 85’ ROW width (which includes bike lanes) is included as the recommended alternative.
Transit

Valley Regional Transit (VRT) ridership counts indicate Cole Road (Route 29) is one of the most heavily used bus corridors in the Treasure Valley. Boise Town Square, located off Cole Road just north of the project limits, is a significant pick-up and drop-off location. VRT currently has six bus stops within the project area, and does not anticipate removing, adding, or relocating those locations in the near future (see Appendix B for map with bus stop locations). VRT recommends that all bus stop locations be at least 8’ deep and 13’ wide to provide enough room for wheelchair access and pedestrian benches. Coordination with VRT will be important during future design phases of the project to ensure the Cole Road widening plans accommodate the bus stop needs of VRT and their users.

Railroad Crossing

The Union Pacific Railroad (UPRR) crosses Cole Road directly north of Franklin Road. With the reconfiguration of the Cole Road / Franklin Road intersection, Cole Road will be widened approximately 12’-18’ to accommodate a right turn lane for southbound right turning traffic. The project team met with UPRR representatives to inform them of the project and receive any input that the UPRR may have on the project and their facilities. The UPRR representatives did not express any significant concerns with the project. The UPRR was asked how they prefer to deal with pedestrian crossings on Cole Road, and the UPRR representatives recommended a zig-zag gate. Future coordination with UPRR will be critical to the success of the project.

Construction Staging

The Cole Road corridor and the Cole Road / Franklin Road intersection are in the vicinity of the Boise Town Square Mall. Seasonal holiday shopping in and around Boise Town Square Mall imposes significant roadway delays and congestion not encountered during normal traffic operations. In general terms, the roadway network surrounding this area provides a significant economic benefit to the Treasure Valley and State of Idaho, and it is very critical to minimize travel impacts associated with the identified improvements. Each stage of the construction (as outlined below) will provide a construction duration and schedule that emphasizes the importance of minimizing traffic impacts between Thanksgiving and New Year’s to avoid impacting the holiday shopping season.

With this approach in mind the project team developed a construction staging plan that consists of four distinct stages. Stage 1 constructs the widened Farmer’s Lateral Canal crossing. Stage 2 constructs the east side of the Cole Road corridor and Stage 3 constructs the west side of the Cole Road corridor. Lastly, Stage 4 reconstructs Franklin Road and the north side of Cole Road.
This staging was developed based on the three major components associated with the concept:

- Farmers Lateral Canal Crossing
- Converting Cole Road from a 3-lane facility to a 5-lane facility
- Converting the Cole Road / Franklin Road 5x6 intersection to a 7x7 intersection

There are alternative construction methodologies provided for constrained scenarios identified with regard to construction staging. The Concept Construction Staging Technical Memorandum, included as Appendix H, also outlines accommodations for bicycles and pedestrians and provides a general outline for construction duration. The memorandum also provides typical sections to convey the traffic control operations outlined for each construction stage.

**Context Sensitive Design Solutions**

The Cole Road, I-84 to Franklin Project used a variety of Context Sensitive Solutions techniques during the Concept Design Phase, including:

- Balancing safety, mobility, community and environmental goals along the Corridor
- Involving the public and stakeholders early and continuously throughout the planning and project development process
- Addressing all modes of travel
- Applying flexibility inherent in design standards

As discussed in the previous sections, stakeholders and members of the general public were contacted several times. Input from property owners, agencies, and the public was sought early in the project and utilized during alternatives development, refinement, evaluation and screening and selection of the preferred alternative.

The typical section proposed for the Corridor includes travel lanes for vehicles and buses, dedicated bike lanes, and sidewalks for pedestrians to accommodate a variety of modes along the roadway.

Currently, stormwater generated within the limits of the project is carried off-site by a storm drain system. The recommended stormwater facilities include capturing and infiltrating stormwater on-site for a large portion of the proposed project. Infiltrating stormwater onsite benefits the environment by reducing the downstream flow rates and closer matching the existing hydrologic conditions contained within the project area. In the existing storm drain systems on-site, there are no water quality facilities. The proposed project will include water quality facilities, including sand and grease traps, and sand filters that will remove sediment from stormwater runoff.

These features, when considered holistically, result in a proposed Cole Road corridor study that encapsulates the intent of evaluating and recommending Context Sensitive Solutions.
Opinion of Probable Construction Costs

A conceptual level Estimate of Probable Construction Costs was prepared for the recommended alignment (east shift for Cole Road, west shift for the Cole Road / McMullen Street intersection). Material quantities for the concept cost estimate were developed using the preferred alignment footprint and assumed roadway section thicknesses. However, because the associated geotechnical testing was not completed during this stage of the project the section thicknesses may change, which would affect the construction costs.

Other items, such as drainage/irrigation, removals, signals, traffic control, etc. have been estimated as lump sum items or as a percentage of the roadway material construction cost. Unit prices reflect recently bid projects at the time this Opinion of Probable Construction Costs was developed.

Acquisition costs were estimated based on the right-of-way footprints for the recommended alignment and Cole Road / McMullen Street intersection. Square-footage costs were provided by ACHD’s right-of-way department. The six properties that are anticipated to be an entire acquisition were valued based on the Ada County assessed value as of November 2011. Demolition costs for the complete acquisitions were not included in the cost estimate.

This Opinion of Probable Construction Costs is based on conceptual level design data and will need to be refined as the design progresses. Based on the high-level analysis used in the estimate, costs for construction of the proposed improvements could range from $4,700,000 to $5,700,000 (values do not include acquisition costs). Please see Appendix I for the concept-level Opinion of Probable Construction Costs and anticipated acquisition costs.

Conclusion

The objective of the Concept Study was to answer key questions and identify the long-range needs for Cole Road, between I-84 and Franklin Road. The preferred alternative selected during the Concept Study and discussed in this report serves as the long-term recommendation for Cole Road. The recommendation is based on analysis, engineering, key stakeholder coordination and input from the general public. Future design phases will refine these conceptual recommendations. Specific attention should be paid to a few key items; identifying and mitigating potential environmental constraints (historic properties and underground storage tanks), including/excluding bike lanes on Franklin Road, finalizing the access management solution (specifically U-turn locations) coordinating with UPRR regarding acquiring property for stormwater facilities, and additional coordination with UPRR regarding the railroad crossing improvements north of Franklin Road.

Upon completion of the Concept Study, ACHD will proceed with design and construction as funding allows. At the time this Concept Report was prepared, improvements along this segment of Cole Road were scheduled in ACHD’s Five-Year Work Plan (2013-2017) for design beginning in 2015, right-of-way acquisition in 2016, and construction in Preliminary Development (unplanned; ACHD may spend money on the project, but has no firm construction date).
Post-Final Concept Report

After the Concept Report was completed, a comment was received by the project team regarding the Cole Road / McMullen Street intersection. This e-mail suggested treating the existing intersection as a single signalized intersection with McMullen Street being offset, rather than revising the intersection geometrically. This would require new traffic signals for all legs of the intersection. Treating the intersection as a single intersection would reduce the required ROW acquisitions needed on the adjacent properties to construct the preferred alternative.

This proposed intersection option could potentially be evaluated in an interim condition until Cole Road is widened to determine if the existing intersection configuration could function effectively as a 4-way, signalized intersection with no changes to the alignments of McMullen Road. This would require modifications to the existing signal poles, or potentially new signal poles.

This option of treating the Cole Road / McMullen Street intersection as a single signalized intersection warrants further consideration and should be evaluated during Preliminary Design if no interim changes to the intersection are made.