

Carson City Freeway Corridor Multi-Use Path Alignment Alternatives Study



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1.0 INTRODUCTION

1.1 Project Background

A multi-use path along the Carson City Freeway Corridor was completed from Silver Oak Drive to Northridge Drive as part of Phase 1 of the freeway. A 2001 agreement between Carson City and the Nevada Department of Transportation (NDOT) relieved NDOT from the obligation to construct a north-south path along the freeway corridor in subsequent freeway phases. NDOT did agree to leave room for a future path within the freeway right-of-way where possible, and did construct an important east-west link in the City's path system as part of Phase 2A of the freeway. This east-west link extended the Linear Park path under the freeway just north of Fifth Street and connected it to Butti Way. However, no north-south path was constructed with Phase 2A of the freeway.

Phase 2B of the freeway, which will extend it from Fairview Drive to Hwy 50 West, will interrupt a number of east-west and north-south routes currently used by bicyclists and pedestrians, including the currently designated north-south bike route along Silver Sage Drive, bike and pedestrian access to the Edmonds Sports Complex from Hillview Drive, and access to the Prison Hill Recreation Area. At the same time, the freeway corridor provides an unprecedented opportunity to expand the City's non-motorized path system to connect neighborhoods, schools, and recreational facilities such as the Boys & Girls Club, Mills Park, Carson High School, and Governor's Field in the northern and central parts of the community with Edmonds Sports Complex and Carson City Fairgrounds/Fuji Park in the south. Opportunities and sufficient space exist for path segments in various sections of the freeway corridor. However, these opportunities are disconnected and occur on different sides of the freeway. In addition, NDOT is preparing to dispose of surplus property that was purchased to construct the freeway, and these sales potentially could preclude a path in key areas.

To expand the City's path system in a cohesive and well planned manner, an alignment alternatives study is necessary to ensure the various path segment opportunities are connected to provide the best possible path alignment. This will enable the City to identify a preferred path alignment, add the alignment to the City's *Unified Pathways Master Plan* and the Carson Area Metropolitan Planning Organization's (CAMPO) *Regional Transportation Plan*, establish a phasing plan, and seek funding for the highest priority phases. This Alignment Alternatives Study analyzes and evaluates the alignment alternatives for the approximately seven-mile length of the freeway corridor from Northridge Drive to the Carson City Fairgrounds/Fuji Park, and then south to Jacks Valley Road in Douglas County. The study area is shown on Figure 1.

1.2 Project Goals

The City's *Unified Pathways Master Plan* shows an off street multi-use path, for use by bicyclists and pedestrians, along Phase 2 of the freeway corridor. The path is intended to be both a transportation and a recreational facility with the goals of:

- Providing an off-street multi-use path that connects Northridge Drive at the Boys and Girls Club to the intersection of South Carson Street and Old Clear Creek Road.
- Providing connections to existing and proposed paths on the *Unified Pathways Master Plan*, including 5th Street, the Linear Park path, and the Edmonds Sports Complex.

- Providing an alternative north-south bicycle route to mitigate the interruption of the current routes by Phase 2B of the freeway.
- Providing access and connectivity to adjacent neighborhoods that will be cut off when Phase 2B of the freeway is completed by providing alternative routes along and across the freeway.
- Completing an important section of path identified in the City's *Unified Pathways Master Plan*.

The purpose of this alignment alternatives study is to describe the design parameters and criteria used to determine the preferred alternative alignment, briefly describe the alternatives considered, evaluate the alternatives based on the criteria listed below, and present a more detailed description of the alignment that best meets the goals and objectives. Criteria and factors considered in this study include:

- Ability to meet the project goals
- Effectiveness in connecting existing path segments
- Impact on NDOT freeway facilities
- Willingness of property owners to grant the required easements
- Safety at major road crossing points
- Estimated cost
- Phasing of path segments
- Constructability
- Maintenance

2.0 DESIGN STANDARDS

2.1 Background

The Americans with Disabilities Act (ADA) of 1990 prohibits discrimination on the basis of disability. However, the current ADA Accessibility Guidelines (ADAAG) do not specifically address sidewalk and path/trail design. In an effort to determine when ADAAG provisions apply to sidewalks and paths/trails, the Federal Highway Administration (FHWA) sponsored a project to research existing conditions on sidewalks and paths/trails for people with disabilities. The project resulted in a two-part publication titled *Designing Sidewalks and Trails for Access*. Part I is a review of existing guidelines and practices, and Part II is a best practices design guide.

Designing Sidewalks and Trails for Access, Part II: Best Practices Design Guide provides design recommendations for both *Recreation Trails* and *Shared Use Paths*, as does the American Association of State Highway Officials (AASHTO) *Guide for the Development of Bicycle Facilities*. These two documents, together with input from Carson City and NDOT staff and advocacy groups, have been used to develop the preliminary design standards for the Freeway Corridor Multi-Use Path.

2.2 Design Standards

Path Surface

The main 10-foot path will be constructed with a minimum of 3 inches of asphalt concrete pavement on 6 inches of compacted aggregate base.

Path Width

The path will consist of a 10-foot paved width with 2-foot unpaved shoulders on either side. 10 feet of paving is the AASHTO desired standard for a multi-use path or trail. In some tightly constricted areas, the path width may be reduced to 8 feet and/or shoulder width reduced. See Figure 2 for path typical sections.



Typical path

Design Speed

The design speed for the path will be 20 mph wherever practicable, which is the AASHTO minimum design speed for a Class 1 Bikeway. Portions of the path will have a lower design speed due to physical constraints. These sections will be posted accordingly.

Horizontal Alignment and Cross Slope

The standard path cross slope will be 2% to provide adequate drainage. The AASHTO minimum bike path curve radius for a 20 mph design speed is 100 feet. This will be used on the path wherever possible. However, it is recognized that this standard may need to be reduced in areas of difficult terrain to a minimum of 40 feet. Where the path approaches a stop at an existing road or path junction, the approach radius may be further reduced with appropriate signage.

Grades

Grade requirements for ADA compliance are given in *Designing Sidewalks and Trails for Access, Part II: Best Practices Design Guide*, and are summarized as follows: Wherever possible, the maximum longitudinal grade on the path will be limited to 5%. In areas of steep slopes where this is not possible, grades may be increased to 8% for a maximum of 200 feet and 10% for a maximum of 30 feet. Resting areas with slopes of 2% or less will be provided between steeper sections of path. Vertical curves will be provided where grade changes exceed 3%. Curve lengths will be in accordance with the AASHTO *Guide for the Development of Bicycle Facilities*.



Typical railing at path drop-off

Edge Protection (guardrail or handrail)

Edge protection will be provided in areas of steep side slopes where there is a retaining wall on the downhill side or the existing slope presents a significant hazard to users. Concrete barrier rail with access control fencing will be placed between the path where it is adjacent to a freeway travel lane or ramp.

Signs

Signs will be provided to alert users to conditions that do not meet the preferred standards for a recreational path, such as steep grades or sharp curves. It is likely that there will be some interpretive signage installed along the path.

Erosion Control

Cut and fill slopes will be revegetated with an appropriate dryland seed mix and either mulch or an erosion control blanket.



Example of path signs

3.0 ALIGNMENT ALTERNATIVES CONSIDERED

3.1 General

A path alignment that meets the primary vision and goal of the project, namely to provide an off-street north-south route for pedestrians and bicyclists, must by necessity be located within the freeway corridor right-of-way (ROW) in areas where there is existing development on either side of the freeway that precludes a path outside the ROW. In areas where there is undeveloped land, there are more options to move the path outside the NDOT ROW; however, the options will depend on the willingness of private property owners to dedicate easements for the path.

The Preliminary Alignment Alternatives 1" = 500' exhibits (Figures 3.1 to 3.5) show a number of alternative alignments on both sides of the freeway. These alignment alternatives were developed during several site reconnaissance visits by Lumos staff, followed by Lumos and City staff reconnaissance on August 25, 2010, and then further refined after a meeting with NDOT staff on November 15, 2010. For an alternative to be viable, it must be acceptable to NDOT if it is within NDOT ROW or on property owned by NDOT. At the November 15, 2010 meeting, NDOT indicated areas where it would not be acceptable to them for the path to be inside their ROW and/or control of access (COA) fence, and areas where they would consider a path within property they currently own.

A broad range of alignment alternatives were considered on both east and west sides of the freeway. The purpose of this study is to identify a preferred alignment on one side or the other of the freeway. However, the preferred alignment could be on different sides of the freeway between major east-west cross streets if there can be safe and logical connection points at these cross streets. For example, the preferred alignment could be on the east side of the freeway between Hwy 50 and the existing Linear Park path and on the west side of the freeway between the Linear Park path and Fairview Drive because the existing Linear Park path provides a safe crossing under the freeway.

3.2 Alignment Descriptions

A number of alignment alternatives and several variations were considered. These alternatives are briefly described below and shown on Figures 3.1 to 3.5. The alignment alternatives are described from north to south.

Segment 1: Northridge Drive to Hwy 50 East

Alternative A: West Side Alignment

From its current end at Northridge Drive, the path would extend along the east side of Russell Way on NDOT ROW and NDOT-owned property to Hwy 50 where it would join the existing 12-foot wide sidewalk on the north side of Hwy 50. This route would extend west on the 12-foot sidewalk to the signal at the entrance to the Gold Dust West Casino, where it would cross to the south side of Hwy 50.

Alternative B: East Side Alignment

The path would extend under the existing freeway bridge structure on the south side of Northridge Drive as a 12-foot wide sidewalk. A 4-foot-high retaining wall and removal of some existing concrete slope paving would be required to widen the existing sidewalk. The path would then extend south on the west side of North Lompa Lane to Hwy 50. Approximately 1,100 feet of the path would be in NDOT ROW, with the remainder being on the proposed casino site owned by RIDL, Inc. The Special Use Permit (SUP) application for this development shows a path adjacent to North Lompa Lane. The route would cross Hwy 50 at the existing signal at North Lompa Lane and Hwy 50.

East-West Hwy 50 Path Connectivity



Existing sidewalk on Hwy 50 looking west

There is currently an existing separated path on the south side of William Street (Hwy 50) from Mills Park to just west of the signal at the entrance to the Gold Dust West Casino. Heading east from the signal, through the U.S. 395/Hwy 50 Single Point Urban Interchange (SPUI) east to North Lompa Lane, there is a sidewalk that varies in width from five to eight feet. Just east of North Lompa Lane the separated path resumes and continues to the east. Irrespective of which north-south alignment option is selected, east-west path connectivity along Hwy 50 would be greatly improved by widening the existing sidewalk to 12 feet between the signal at the entrance to the Gold Dust West Casino and

North Lompa Lane. This would require additional right-of-way or easements from the Gold Dust West Casino and Carson Land Holdings, LLC, changes to driveways and pedestrian ramps, and the relocation of some utilities.

Segment 2: Hwy 50 East to the Linear Park Path

Alternative A: West Side Alignment

From the signal at the Gold Dust West Casino entrance, the route would continue to the east, crossing the entrance to the Gold Dust West Casino parking lot. The existing 8-foot-wide path on the south side of Hwy 50 would be widened to 12 feet. This would require an easement from the Gold Dust West Casino, construction of a low retaining wall,



Entrance to Gold Dust West Casino parking lot

and relocation of some utilities and signs. East of the Gold Dust West Casino parking lot, the path would head to the south across NDOT-owned property, just outside the freeway fence, to the north edge of the large linear ditch on the Lompa property. The path would continue south along the west edge of the ditch to just opposite where the existing Linear Park path goes under the freeway. At this point there would be a bridge over the drainage channel to connect to the existing Linear Park path south of the prominent bend on the west side of the freeway.

There also would be a continuation of the path along the west side of the small drainage ditch to connect to 5th Street just east of the Lompa Ranch Buildings, with another path on the south side of 5th Street to provide a connection to the existing Linear Park path, either along the west side of the large drainage channel that is south of 5th Street or via a bridge over the large drainage channel just south of 5th Street.

Alternative B: East Side Alignment

The property south of Hwy 50 between the freeway and North Lompa Lane is owned by Carson Land Holdings, LLC. From the signal at North Lompa Lane, there are two options to get to the southern end of this property. The first option is for the route to go west, either by widening the sidewalk to 12 feet or constructing a separate path, then turn to the south within the NDOT-owned surplus property. Approximately 800 feet south of Hwy 50, there is a retaining wall at the toe of the freeway fill slope, and there is not room within NDOT ROW for the path, so an easement would be required from Carson Land Holdings.



North Lompa Lane south of Hwy 50 looking south

The second option would be to extend the path south just west of the ROW of North Lompa Lane. Currently, this ROW is only 30 feet wide, and additional ROW will have to be dedicated when the Carson Land Holdings parcel develops. In this option, the path would cross an area that is currently used by the residents of the apartments on the east side of North Lompa Lane for parking (illegally). Again, an easement would be required from Carson Land Holdings.

An interim, but less desirable, solution would be to have an on-street facility to the south end of North Lompa Lane.

The land south of the current end of North Lompa Lane is owned by the Lompa Family. The path would continue south on Lompa property (easement required) just outside (east of) the NDOT ROW fence to the outlet of the major storm drain box culverts. NDOT has indicated that they will not allow the path to be on the gravel maintenance road around the east side of the water quality basins that provides access to the box culverts, because the road is used by heavy equipment that has to have room to turn around at the end of the maintenance road. So the path would continue south on Lompa property just east of the fence on the east side of the maintenance road to the east-west maintenance road between the ponds and the Kings Canyon Creek drainage channel.



Looking south on Lompa property

From this point, three alternatives were considered to connect to the existing Linear Park path on the south side of the Kings Canyon Creek drainage channel. The most direct route would be for the path to continue due south across the drainage to the existing path on the south side. Since the channel is a Federal Emergency Management Agency (FEMA)-designated floodway, this would require a low elevation path with low-flow culverts, a boardwalk, or a bridge structure. The Kings Canyon drainage channel has shallow standing or flowing water in it for most of the winter and spring, and thus use of an at-grade path would be severely limited. One possibility is to raise the path

about two feet above the floor of the drainage channel and have multiple low-flow culverts under it. If the boardwalk or bridge options are used, the underside of the structure would have to be above the 100-year flood elevation. These alternatives will have to be evaluated in an engineering analysis to determine which of them is feasible. The low-level path will be considerably less costly than either the boardwalk or the bridge.

Another possible route would be to turn the path to the west and follow the maintenance road between the water quality basin and the Kings Canyon drainage channel to where it descends and crosses under the freeway. At this point, the path would turn south and cross the Kings Canyon Creek drainage at or slightly above grade over the area that is currently rip-rapped, and join the existing Linear Ditch path on the south side of the channel. Low-flow culverts would be provided. However, NDOT has indicated they do not want the crossing to be within their ROW. In addition, the east-west maintenance road between the water quality basin and the Kings Canyon drainage channel is designed as a weir to accommodate large flows from the water quality basins to the drainage channel and would be washed out in major storm events. The east-west road is also an exclusive easement for the Lompas to move cattle from the west to east sides of the freeway and thus path users would have to share the path with cattle.



Maintenance road/weir between water quality basins and Kings Canyon Drainage

Another variation on the east-side route would be for the path to head east at the north edge of the Kings Canyon Creek drainage channel to Butti Way and then turn south on the west side of Butti Way. At the Reinforced Concrete Box (RCB) culvert under Butti Way, the road would have to be realigned to the east in order to provide adequate room for a separate reduced-width path on the west side of the road.

Segment 3: Linear Park Path to Fairview Drive

Alternative A: West Side Alignment

The existing Linear Park path extends approximately 1,500 feet south of 5th Street on the west side of the freeway before turning to the west. From this point, the new path would extend south in NDOT ROW, but outside their control of access (COA) fence, cross over the top of the existing RCB culvert about 400 feet south of the existing Linear Park path, and continue south just outside (west) of NDOT ROW on Lompa property (easement required) to about 700 ft. north of Fairview Drive, where the Lompa property ends. The COA fence has a sharp jog to the west just south of the box culvert, and there would have to be a minor reconfiguration of the COA fence to avoid excessively sharp curves in the path.



Existing Linear Park path as it turns to the west

Currently, the only safe place to cross Fairview Drive is at the southbound freeway off-ramp signal. For the path to reach the pedestrian crossing at the signal, the best alignment from the south edge of the Lompa property would be for the path to parallel the off-ramp on its west side. This will require relocation of the existing COA fence and installation of a concrete barrier with access control fencing on top of it parallel to the existing off ramp shoulder. The path would have to be benched into the existing fill slope, which would require either a low retaining wall or recontouring the slope.

Alternative B: East Side Alignment

From the intersection of 5th Street and Butti Way, the path would extend west on the south side of 5th Street, cross the entrance to the Nevada State Prison, and continue to the cul-de-sac at the west end of the prison access road (Warm Springs Court). There is limited room between the existing prison parking and an existing City pump station, so an alternative to a separate path would be an on-street shared-use facility on Warm Springs Court. From the cul-de-sac at the end of Warm Springs Court, the path would turn south on NDOT property, but outside the COA fence, to just south of a water quality basin where it would enter Lompa property (easement required) and continue south to Fairview Drive, where it would ramp up the fill slope to a point opposite the future northbound freeway off-ramp. At present, there is no safe place to cross here, but when Phase 2B of the freeway is completed, there will be a signal at this location. This alternative would require concurrence from Nevada State Prisons and the Nevada Division of State Lands.



Looking south from the end of Warm Springs Court

A variation on the route south of Warm Springs Court would be to utilize the dirt road on the east side of the old linear ditch to south of the water quality basin. However, this route would bring the path closer to the Nevada State Prison.

Segment 4: Fairview Drive to Edmonds Sport Complex

Alternative A: West Side Alignment



Looking south from Fairview Drive

From the south side of Fairview Drive, the path would descend parallel to the future southbound on-ramp, or alternatively descend the Fairview Drive fill slope to the west on a bench, then turn to the south and run along the east side of the residential area to the cul-de-sac at Colorado Street. This location would provide a connection to the adjacent residential neighborhood. The path would continue south along the power line corridor to Koontz Lane (providing another neighborhood connection point) along the utility corridor between the top of the freeway cut slope and the homes to the west. In the places where there will be a sound wall, the path would be between the sound wall and the backyard fences.

The path would continue south between the sound wall and backyard fences to Valley View Drive, where there is the potential for a non-motorized bridge crossing of the freeway. Line Drive, which is unpaved, extends between Valley View Drive and Koontz Lane immediately west of the freeway ROW. Along Line Drive, which is a 30' ROW, the path would have to be a shared use on-street facility due to the limited ROW, unless the NDOT control-of-access fence can be moved to the east to allow enough room for a separate path. Six private residential parcels have frontage on Line Drive. South of Clearview Drive, the path would be on Carson City Christian Fellowship Church property (easement required) and on the four residential lots south of the church (easements acquired by City), until Carson City property at the north edge of the Edmonds Sports Complex is reached.



Looking north along the power line corridor

As the freeway turns to the west, it will cut off the main (southern) portion of the Edmonds Sports Complex from a smaller portion of the complex (currently undeveloped) that lies east of Hillview Drive and south of Appion Way. To connect to the main Edmonds Sports Complex, the path will have to cross the freeway. There are two options to do this. One is to cross the freeway on a non-motorized bridge that would be located opposite the junction of North View Drive and Appion Way. At this point, the freeway is in approximately 15 ft. of cut, so the grade transition on either side of the bridge could be accomplished relatively easily. The second option would be for the path to continue across City property on the west side of the freeway to Hillview Drive, where it would turn south and cross under the freeway in a 12' wide by 10' high concrete box to connect to the northwest corner of the Edmonds Sports Complex. The freeway is roughly at existing grade at this point; however, to get under the proposed drainage channel on the south side of the freeway would require the floor of the box to be about 18 ft. below existing grade. This would present a significant challenge to get the path back up to grade in the limited space available within the Edmonds Sports Complex.

If a separate non-motorized crossing of the freeway is not constructed, then the Clearview Drive Bridge, which will have both bike lanes and 5-foot-wide sidewalks, will provide an alternative transition point from a west side alignment to an east side alignment.

Alternative B: East Side Alignment

In this alternative, the path would continue south from Fairview Drive just outside NDOT ROW, east of the northbound off ramp, before turning due south along the east edge of an NDOT



Looking south along Edmonds Drive

earthwork disposal area to the west side of Edmonds Drive. This would require an easement on a parcel owned by Brown. It would then follow the west side of Edmonds Drive, inside NDOT ROW to a point about 400 feet south of the former Colorado Street, where it would transition into the Edmonds Drive ROW. From this point south to Clearview Drive, there is insufficient room to fit a path between the existing Edmonds Drive edge of pavement and the freeway fence. The only way to have a path in this section would be to utilize all or a portion of the maintenance road on the east side of the rectangular concrete channel at the top of the freeway cut slope, or alternatively construct a

retaining wall to support a path adjacent to Edmonds Drive, though this would preclude any future widening of Edmonds Drive to the west.

From a point about 500 feet south of Clearview Drive, there are two options for continuing the path to the south. The first option follows the top of the freeway cut slope to the northeast corner of the Edmonds Sport Complex. There is a very tight section where the corner of a private residential parcel abuts the drainage ditch at the top of the cut slope. This would require reconfiguring the ditch into a culvert and an easement from the private property owner.

The second option is to continue the path along the shoulder of Edmonds Drive past six residential driveways before turning to the west to access the northwest corner of the Edmonds Sports Complex through a 60-foot-wide undeveloped ROW. Once inside the Edmonds Sports Complex, the exact routing of the path will depend on the location of future soccer fields.



Looking north along Edmonds Drive at residential driveways

Segment 5: Edmonds Sport Complex to Snyder Avenue

At the Edmonds Sports Complex, the freeway turns to the west, so the alignment options are described as north or south of the freeway.

Alternative A: North Side Alignment

There is room for a path within NDOT ROW on the north side of the freeway from Hillview Drive to Ponderosa Drive. However, between Ponderosa Drive and the Snyder Avenue overpass, there will be a major detention basin. The basin will be shallow, and it may be possible to reduce the surface area of the basin and widen the bank on the south side of the basin to create room for the path. This would require changes to three storm drains and two ditches that will enter the basin, and relocation of the NDOT control-of-access fence. To make a connection to local streets, the path would have to be routed to the intersection of Silver Sage Drive and Roland Street, and continuation of the path to the west along the north side of the freeway would serve no purpose because there is no safe place to cross South Carson Street at the proposed South Carson Street/U.S. 395 SPU. Therefore, continuation of the route would be to go north on Silver Sage Drive to Appion Way, or to go south over the Snyder Avenue overpass on bicycle lanes and the sidewalk to Center Drive on the south side of the freeway.

The other north side alignment options shown on Figures 3.3 and 3.4 are on-street facilities along Roland Street and Appion Way to Silver Sage Drive. There are no sidewalks along Roland Street or Appion Way. On the Roland Street alternative, the route would continue on-street and turn southeast over the Snyder Avenue overpass to the south side of the freeway at Center Drive. On the Appion Way alternative, the route would continue west on Appion Way to Snyder Avenue.



Looking west along Appion Way

Alternative B: South Side Alignment

From the northwest corner of the Edmonds Sports Complex Soccer fields, the path would turn south inside the sports complex fence, then turn west into the Bennett Avenue ROW. Between the west edge of the Edmonds Sports Complex and Bigelow Drive, there is 30 feet of public ROW between the 1/4 Section line that defines the northern boundary of the Washoe Tribe property and the southern edge of the freeway ROW. Between Bigelow Drive and Center Drive, NDOT owns up to the 1/4 section line that forms the northern boundary of the Washoe Tribe property; however, the COA fence is proposed to be 30 feet north of the 1/4 section line. The path would follow the Bennett Avenue ROW to Bigelow Drive, then continue west in the 30-foot strip between the Washoe Tribe property and the freeway COA fence to the cul-de-sac just east of Snyder Avenue.



Intersection of Bennett Avenue and Bigelow Drive looking west

Segment 6: Snyder Avenue to Old Clear Creek Road

Alternative A: North Side Alignment

The route would go west as an on-street facility along Appion Way to Snyder Avenue, then continue west along the future realigned Snyder Avenue (Appion Way) to the future signalized intersection at South Carson Street and Appion Way, where it would cross to the west side of South Carson Street. This would provide a connection, via West Appion Way, to Cochise and Curry Streets, which are a north-south bicycle route.

From the Appion Way signal, the route would go south on the west side of South Carson Street as an off-street path in NDOT ROW, through the South Carson Street/U.S. 395 SPUI, to the signal at Old Clear Creek Road. There is room through the SPUI to incorporate a 10-ft path (or alternatively a 12-ft wide sidewalk) rather than the 5-ft wide sidewalk that is shown on the current NDOT plans.

This link is critical to north-south bicycle route connectivity regardless of which route is selected along the freeway corridor. See page 20 for more details.

Alternative B: South Side Alignment

From the cul-de-sac at the west end of Bennett Avenue, the path would continue west under the Snyder Avenue overpass adjacent to the freeway travel lanes. This would require placing an access control fence on the concrete barrier rail and constructing a 6-foot retaining wall at the toe of the bridge slope paving. There would also have to be some reconfiguration of the drainage facilities at the southwest corner of the slope paving. From Snyder Avenue, the path would continue west inside NDOT ROW with a short connection to the cul-de-sac at Silver Sage Drive. There would also be a connection to Center Drive. This is necessary to replace the current north-south bicycle route that goes along Silver Sage Drive. Bicyclists heading south on Silver Sage would be able to cross the freeway on the Snyder Avenue overpass, turn onto Center Drive, then either continue south on-street on Center Drive to Clear Creek Avenue or double back to the north to connect to the path heading west.

From the cul-de-sac at Silver Sage Drive, the path would continue west in NDOT ROW for about 300 feet, then transition onto the BLM property on the south side of the freeway. The path would continue west just outside NDOT ROW to the frontage road at Arthur Street. At one point in time, NDOT had plans for a future storm water detention facility on the BLM parcel; however, they have found a more suitable location for the basin, so there currently are no plans for a detention basin on the BLM property. From the frontage road at Arthur Street, the facility would be an on-street facility to the existing signal at South Carson Street and Old Clear Creek Road. This signal will provide a safe crossing point of South Carson Street. Old Clear Creek Road provides an on-street facility to the Carson City Fairgrounds/ Fuji Park.



Existing frontage road looking north

Segment 7: Old Clear Creek Road to Jacks Valley Road

Alternative A: On West Side of Hwy 395

From the south side of Old Clear Creek Road, the path would extend south on the west side of Hwy 395 to Jacks Valley Road. The path would have to cross the entrance to Bodine's Casino, the main access to the Walmart shopping center at Topsy Lane, two additional shopping center driveways, and the driveway to the Shepherd of the Sierra Lutheran Church. At Jacks Valley Road, the path would connect to the signal at Hwy 395 and Jacks Valley Road.

Alternative B: Old Clear Creek Road and Vista Grande Boulevard

This route would go west on Old Clear Creek Road as an on-street facility utilizing the existing bike lanes and sidewalks to Vista Grande Boulevard. It would then turn south onto Vista Grande Boulevard, continuing as an on-street facility to the end of the existing pavement, which is at a service driveway about 400 feet south of Topsy Lane. From this point to Jacks Valley Road, Vista Grande Boulevard is undeveloped and is currently a dirt track. Paving Vista Grande Boulevard to Jacks Valley Road would provide a parallel facility to Hwy 395 and would enhance the transportation network in this area. From the end of the pavement, the path would continue south either as a separate path or as an on-street facility to Jacks Valley Road.

4.0 PREFERRED ALIGNMENT RECOMMENDATION

At the November 15, 2010 meeting, NDOT indicated areas where it would not be acceptable to them for the path to be inside their ROW and/or COA fence, and areas where they would consider a path within property they currently own. Based on this information, Carson City staff met with a number of adjacent property owners, including the Lompa family, Nevada Division of State Lands, and Nevada State Prison staff. They also met with Washoe Tribe staff and presented the preliminary alignment alternatives to the Stewart Indian Community Council.

For a path alignment on private property to be viable, the property owner must be willing to grant an easement for the path, so the discussions with individuals and entities that own property adjacent to the freeway right-of-way were a key component in identifying a preferred alignment. The full list of factors considered in making the preferred alignment recommendation are:

- Ability to meet the project goals
- Effectiveness in connecting existing path segments
- Impact on NDOT freeway facilities
- Willingness of property owners to grant the required easements
- Safety at major road crossing points
- Estimated cost
- Phasing of path segments
- Constructability
- Maintenance

Segment 1: Northridge Drive to Hwy 50 East

An alignment on the east side of the freeway along the west side of Lompa Lane is the preferred alignment in this segment for the following reasons:

- A separate path is possible for this entire segment.
- The path will provide good connectivity to the existing freeway multi-use path on the west side of the freeway at Northridge Drive and the 8-foot-wide sidewalk on the north side of Northridge Drive. There is already a pedestrian crossing on Northridge Drive at this location.
- The preliminary site plan for the proposed casino at the northwest corner of Hwy 50 and North Lompa Lane includes a separate path along the parcel's North Lompa Lane frontage, indicating that RIDL, Inc., the property owner, is willing to grant an easement for the path.
- The signal at Hwy 50 and North Lompa Lane provides a direct and safe crossing point to the south side of Hwy 50 that aligns with the proposed continuation of the path to the south.
- There is minimal impact on NDOT facilities and maintenance operations.



Intersection of Lompa Lane and Hwy 50
looking south

Issues that need to be addressed in this segment include:

- The slope paving under the freeway bridge over Northridge Drive will have to be modified by constructing a retaining wall to create a 12 ft. wide sidewalk that would accommodate two-way bicycle and pedestrian traffic (See Figure 2). A power pole and electric meter pedestal on the southeast corner of Northridge Drive and Russell Way would have to be relocated.
- At the northeast corner of the RIDL, Inc. parcel, there is an NDOT maintenance access point to the large freeway drainage box culverts. The path will cross this access, and will have to be temporarily closed while NDOT maintenance crews are working in the area. However, maintenance activities occur at infrequent intervals, and this will not be a significant impact on the path.



South side of Northridge Drive looking east

- From about 100 ft. north of the NDOT maintenance access point to just south of the entrance to the Carson Royale Mobile Home Park, there is very little room between the COA fence and the toe of the freeway fill slope, so moving the fence is not really an option. In this area there is no need for the center turn lane that is currently striped on Lompa Lane because there are no side streets or driveways to turn into between the NDOT maintenance access point and the entrance to the mobile home park (MHP). It would be possible to change the striping in this area to eliminate the center turn lane and narrow the pavement on Lompa to accommodate a separate path on the west side of the street. The path would be in lieu of a sidewalk in this area. The center left turn lane and the dedicated northbound left turn lane at Carmine Street would remain between the MHP entrance and Carmine Street; however, it will be necessary to relocate a portion of the NDOT COA fence to accommodate a separate path. North of the MHP entrance, there is room to do this, as there is a flat area between the toe of the freeway fill slope and the fence.



NDOT maintenance access

Segment 2: Hwy 50 East to the Linear Park Path

An alignment on the east side of the freeway that is immediately east of the NDOT COA fence is the preferred alignment in this segment for the following reasons:

- A separate path is possible for this entire segment.
- The Lompa Family, who owns the majority of the property on both sides of the freeway in this segment, has indicated that they would prefer that the path be on the east side.
- The path will provide good connectivity to the existing paths on Hwy 50.
- The path will provide good connectivity to the existing Linear Park path and good wildlife viewing opportunities at the water quality basins and the Kings Canyon Creek drainage.
- If the path is immediately adjacent to the NDOT COA fence south of Hwy 50, it will have minimal impact on the Carson Land Holdings, LLC parcel.
- There is minimal impact on NDOT facilities and maintenance operations.
- There is minimal impact on the Lompa cattle operation.



Looking south across Lompa property.
Note existing use trail

Issues that need to be addressed in this segment include:

- The path will have to head west from the Hwy 50/North Lompa Lane signal to the COA fence at the northbound freeway off ramp. While a path separated from the Hwy 50 sidewalk would be preferable, it would be possible to widen the existing 5 ft. sidewalk on the south side of Hwy 50 to 12 ft. without the need for any major utility or overhead sign relocations.
- Easements will be required from Carson Land Holdings, LLC and the Lompa Family.
- The southern portion of this segment is in a FEMA designated floodplain and the path will have to be constructed so that it does not raise the 100-year flood elevations. This means it will have to be flush with or lower than the existing ground. For most of the alignment this should not be a problem; however, the crossing of the Kings Canyon drainage channel on a low structure with low-flow culverts, boardwalk, or bridge will require engineering analysis to demonstrate that there is not an adverse impact on the flood water surface elevations.



South side Hwy 50 looking west from
North Lompa Lane



Looking west where the path would cross
Kings Canyon drainage

Segment 3: Linear Park Path to Fairview Drive

An alignment on the west side of the freeway that connects the existing Linear Park path to the off-ramp signal at Fairview Drive is the preferred alignment in this segment for the following reasons:

- A separate path is possible for this entire segment.
- It utilizes 3,400 ft. of the existing Linear Park path, which provides a safe undercrossing of the freeway and saves on construction cost over an east side alignment.
- It connects to Fairview Drive at the existing off ramp signal, which is the only safe crossing point on Fairview Drive.
- It is the most direct route.
- It utilizes an existing box culvert to cross a small drainage and cattle undercrossing of the freeway.
- There is only a minor impact on NDOT facilities and maintenance operations.
- There is minimal impact on the Lompa cattle operation.



Looking south from the existing Linear Park path

Issues that need to be addressed in this segment include:

- Approximately 30 ft. of NDOT COA fence just south of the existing freeway cattle crossing box culvert will have to be realigned.
- An easement will be required from the Lompa Family.
- Approximately 300 ft. of concrete barrier rail with COA fencing on it will have to be constructed adjacent to the southbound off-ramp at Fairview Drive, and a retaining wall constructed to enable the path to connect to the pedestrian crossing at the signal.
- Approximately 700 ft. of NDOT COA fence will have to be relocated at the southbound off ramp north of Fairview Drive.
- There are utility access concerns that will have to be addressed just north of Fairview Drive.
- NDOT will not permit the connection to the existing signal at Fairview Drive until Phase 2B of the freeway is open.



Looking south over the existing box culvert



Looking north from existing signal at Fairview Drive

Segment 4: Fairview Drive to the Edmonds Sport Complex

An alignment on the west side of the freeway that extends south from the Fairview Drive signal to the cul-de-sac at Colorado Street, then utilizes the utility corridor just east of the residential area, crosses Koontz Lane, Valley View Drive, and Clearview Drive, then crosses to the east/south side of the freeway on a non-motorized bridge near the Appion Way/Hillview Drive junction to connect to the Edmonds Sports Complex is the preferred alignment in this segment for the following reasons:

- A separate path is possible for this segment, except for approximately 1,300 ft. at Line Drive, where it would be a shared on-street facility (unless NDOT will agree to move the COA fence).
- It provides good connectivity to the residential neighborhood to the west via Colorado Street, Koontz Lane, Valley View Drive, and Clear View Drive.
- It provides a dedicated non-motorized crossing of the freeway to give direct access to the Edmonds Sports Complex and provides a connection between the existing Edmonds Sports Complex and the future City park on the north side of the freeway.
- It avoids the hazardous crossing of the Fairview Drive bridge if the path were to transition to the east side of the freeway at Fairview Drive.
- It will be considerably less expensive than an alignment on the east side that would require lengthy retaining walls and/or reconfiguration of the NDOT maintenance road adjacent to the drainage channel.
- There is minimal impact on NDOT facilities and maintenance operations.



Looking south from existing signal
at Fairview Drive

Issues that need to be addressed in this segment include:

- Approximately 150 ft. of concrete barrier rail with COA fencing on it will have to be constructed adjacent to the southbound on ramp at Fairview Drive, and the slope regraded to enable the path to descend from the signal.
- Approximately 300 ft. of NDOT COA fence will have to be relocated at the southbound on ramp south of Fairview Drive.
- Careful design will be required to ensure adequate sight distance where the path crosses Koontz Lane and Clear View Drive.
- An easement will be required from the Carson Christian Fellowship Church.



Line Drive looking south

- The non-motorized bridge over the freeway will require careful design of the approach grades.
- A non-motorized bridge over the freeway near the Appion Way/Hillview Drive junction is the preferred bridge location for pedestrians and bicyclists using the path for the reasons mentioned above. However, the City is currently evaluating the feasibility of constructing a non-motorized bridge over the freeway at Valley View Drive. A bridge at this location would provide a direct non-motorized freeway crossing for equestrians who live on the west side of the freeway to access the Prison Hill Recreation Area on the east side of the freeway. However, the Valley View location would not be of particular benefit to pedestrians and bicyclists because they can cross the freeway on either the Koontz Lane or Clearview Drive Bridges, both of which have sidewalks and bicycle lanes. As the study progresses into the design phase, both locations should be evaluated based on overall feasibility and benefit.

Segment 5: Edmonds Sport Complex to Snyder Avenue

An alignment on the south side of the freeway that extends from the northwest edge of the Edmonds Sports Complex along the 30 ft. ROW of Bennett Avenue, north of the Washoe Tribe property, and then under the Snyder Avenue overpass is the preferred alignment in this segment for the following reasons:

- A separate path is possible for this entire segment, while an alignment on the north side of the freeway would be a much less desirable and more circuitous shared on-street facility.
- Together with the next segment it provides the most direct connection to the signal at the intersection of South Carson Street and Old Clear Creek Road.
- The path would not adversely impact the Washoe Tribe and with appropriate landscaping could provide a buffer between the Tribe's property and the sound wall on the south side of the freeway.
- With a spur to the south, the path will connect to Center Drive and will provide neighborhood connectivity to south Carson City.



Looking east along Bennett Avenue

Issues that need to be addressed in this segment include:

- The slope paving at the south abutment of the Snyder Avenue overpass will have to be modified with a 6 ft. retaining wall to create sufficient room for the path between the freeway shoulder and the slope paving.
- A concrete barrier rail with COA fencing on top will be required to separate the path from the freeway.
- There may have to be a slight adjustment in the sound wall flare at the cul-de-sac just east of the south abutment at Snyder Avenue.

- Some regrading and adjustment of drainage facilities will be required to make the connection from the west side of the overpass south to Center Drive.

Segment 6: Snyder Avenue to Old Clear Creek Road

An alignment on the south side of the freeway that extends from the west edge of the Snyder Avenue overpass to the intersection of Arthur Street and the frontage road, and then transitions to an on-street facility on the frontage road, is the preferred alignment in this segment for the following reasons:

- A separate path is possible for most of this segment. An alignment on the north side of the freeway would be a much less desirable and more circuitous shared on-street facility.
- Together with the previous segment it provides the most direct connection to the signal at the intersection of South Carson Street and Old Clear Creek Road.
- From the Snyder Avenue overpass to the BLM property west of Silver Sage Drive, the path would be inside NDOT ROW. On the BLM property, the path would be immediately outside the COA fence until it reaches the frontage road, where it would become a shared on-street facility to the South Carson Street/Old Clear Creek Road signal, which would provide a safe crossing point on South Carson Street and access to the Carson City Fairgrounds/Fuji Park to the west.
- It would provide a connection to Silver Sage Drive to the south.

Issues that need to be addressed in this segment include:

- Regrading of the proposed contours will be required just west of the southwest embankment of the Snyder Avenue overpass, and an easement may be required from the property owner of the parcel south of the freeway and east of Silver Sage Drive.
- The path will cross a drainage ditch just north of the Silver Sage cul-de-sac, and the ditch will have to be piped.
- If NDOT will not allow the path inside the ROW adjacent to the private parcel west of Silver Sage Drive, then an easement would be required from parcel owner.

South Carson Street Connection

Current NDOT plans for the freeway interchange at South Carson Street and Hwy 50 show a 5-foot-wide pedestrian sidewalk on both sides of South Carson Street extending through the interchange from Old Clear Creek Road to Overland Street. There are signal controlled crosswalks shown on all four legs of the South Carson Street/Old Clear Creek Road/Lupin Drive intersection. There are no other crosswalks across South Carson Street shown within this segment of South Carson Street. There are no bicycle facilities on South Carson Street shown on the plans and the proposed lane configuration would make it extremely hazardous for bicyclists to ride through the interchange on South Carson Street because of the free right turn movements onto the freeway.

There are no existing bicycle facilities on South Carson Street and as a result bicyclists tend to use Curry and Cochise Streets as a north-south bicycle route on the west side of Carson Street.

However, this route does not connect to Old Clear Creek Road, so south of Appion Way southbound, bicyclists are forced back onto South Carson Street.

To complete a viable north-south route for bicyclists of all skill levels that is separate from South Carson Street, we recommend a separate concrete multi-use path on the west side of South Carson Street that would extend from Appion Way to Old Clear Creek Road. It would be preferable for the path to be set back from the curb by a minimum of 5 ft. and be 10 ft. wide with 2 ft shoulders, which is the AASHTO recommended minimum width for multi-use paths. The path would replace the 5 ft. sidewalk adjacent to the curb on the west side of South Carson Street.

The pedestrian crossings at the free turn on ramps are potentially hazardous for young and/or inexperienced users. The NDOT plans show stop bars at the crossings, but the expected vehicular speeds are high, and some motorists will not stop for pedestrians even if there is a marked crosswalk and a stop bar. Therefore, we recommend that pedestrian-activated stop signals be installed to require vehicles to stop for pedestrians at the pedestrian crossing on the southbound South Carson Street to westbound freeway on-ramp and at the pedestrian crossing on the northbound South Carson Street to eastbound freeway on-ramp.

Segment 7: Old Clear Creek Road to Jacks Valley Road

The Old Clear Creek Road and Vista Grande Boulevard alignment is the preferred alignment in this segment for the following reasons:

- Even though part of the alignment would be an on-street facility, it would be safer than the Hwy 395 alternative because of the three accesses to the shopping center that have high traffic volumes. Vehicles turn right at high speed into the shopping center on the dedicated right turn lanes, and crossing these turn lanes would be hazardous even if pedestrian-activated stop lights were installed.
- When the parcels south of the shopping center on the east side of Vista Grande Boulevard are developed, there is an opportunity for CAMPO and Douglas County to work with the developers to construct a separated path.

Issues that need to be addressed in this segment include:

- There are major driveway accesses to the Comstock Country RV Resort, Costco, Fuji Park, and the Fairgrounds. Better signage alerting drivers that this is a bicycle route would improve driver awareness.

5.0 PATH PHASING

The existing Linear Park path provides a non-motorized east-west route across Carson City that connects Governor’s Field on the west to Riverview Park on the east. The existing freeway multi-use path provides a non-motorized link from Silver Oak Drive on the north to Northridge Drive, which is still north of Hwy 50. The most critical link needed to form a non-motorized path network in Carson City with functional connectivity is to link the existing freeway path at Northridge Drive with the Linear Park path.

Thus, the segment between Northridge Drive and the Linear Park path should be the first phase in the freeway corridor path system. Since there are bike lanes and a sidewalk on Lompa Lane between Northridge Drive and Hwy 50, the segment from Hwy 50 south to the Linear Park path is the most critical and could be constructed as Phase 1A, with the segment between Northridge Drive and Hwy 50 being Phase 1B.

NDOT will not allow the extension of the path to Fairview Drive until Phase 2B of the freeway is completed, so subsequent phases of the multi-use path will not occur until that happens. Once the freeway is completed to South Carson Street and Hwy 50, it would be logical to extend the path southwards from the Linear Park Path in stages. The suggested phasing is as follows:

Phase	Description	Length
Phase 1A	Hwy 50 to the Linear Park Path	5,300 ft.
Phase 1B	Northridge Drive to Hwy 50	2,200 ft.
Phase 2	Linear Park Path to Fairview Drive	2,900 ft.
Phase 3	Fairview Drive to Koontz Lane	5,900 ft.
Phase 4	Koontz Lane to Edmonds Sports Complex (W. side)	5,000 ft.
Phase 5	Edmonds Sports Complex to Old Clear Creek Road	5,800 ft.
Phase 6	Old Clear Creek Road to Jacks Valley Road	3,000 ft.

Depending on the availability of funding and acquisition of the necessary easements, Phases 3, 4, and 5 may be broken into sub-phases.

6.0 PHASE 1A and 1B PRELIMINARY ESTIMATED COSTS

Phase 1A, Bridge or boardwalk option at Kings Canyon Creek drainage.....	\$1,846,000
Phase 1A, Low-level crossing option of Kings Canyon Creek drainage.....	\$987,000
Phase 1A, Realigning Butti Way and using existing box culvert option.....	\$1,147,000
Phase 1B.....	\$503,000

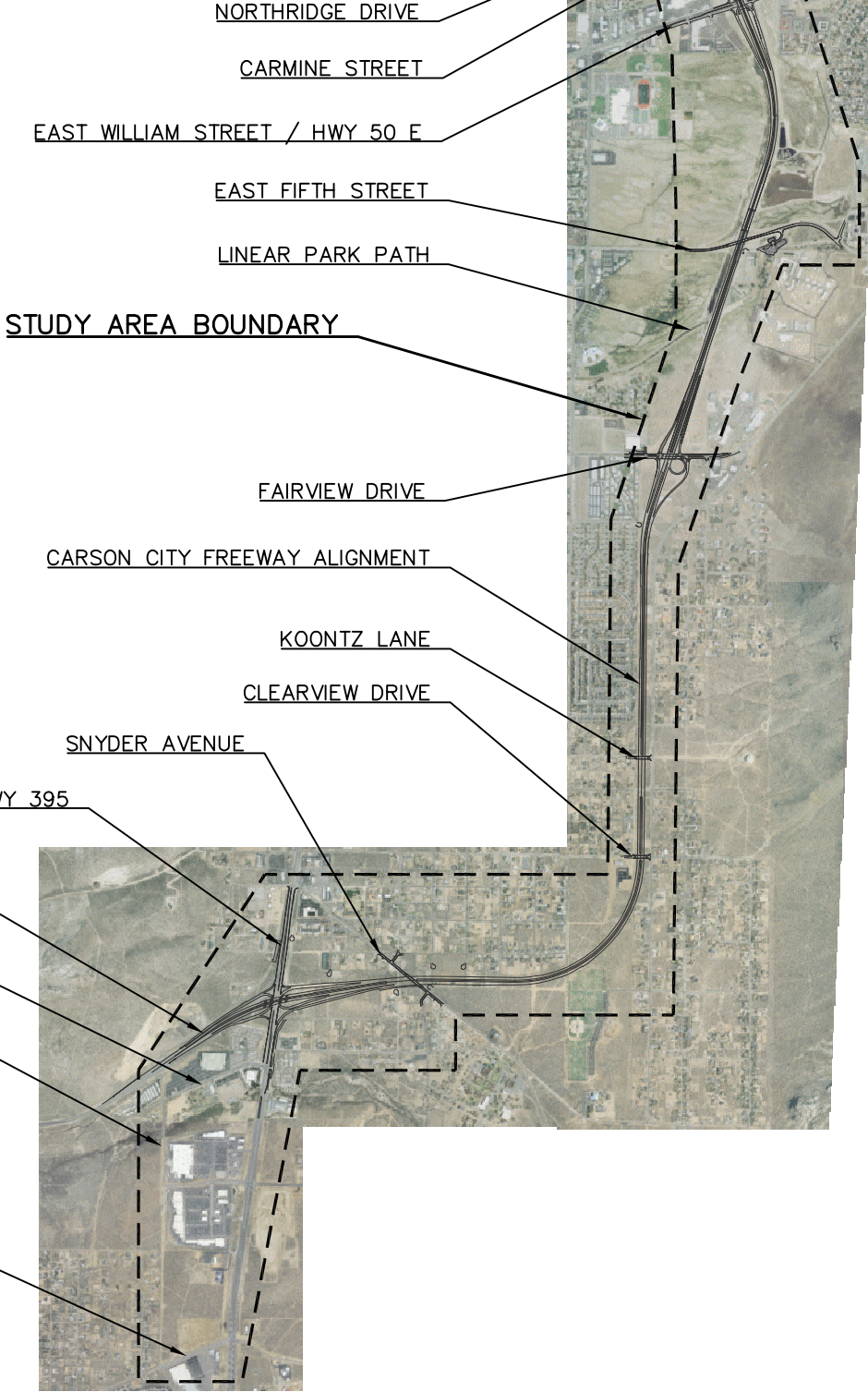
Estimated costs are in today's dollars and include construction cost, 15% contingency, and 17% for engineering and construction oversight. They do not include easement acquisition or any allowance for inflation. Detailed breakdowns are included in Appendix A.

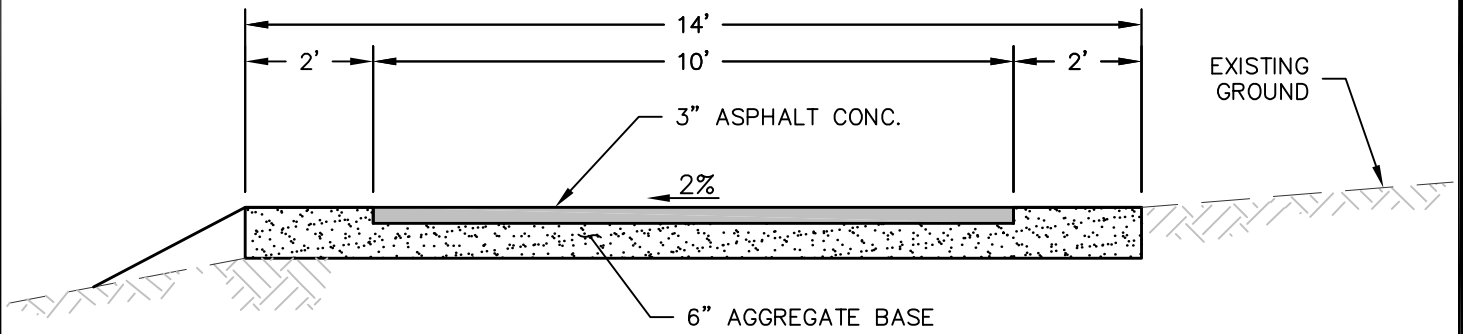
7.0 REFERENCES

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FIGURES

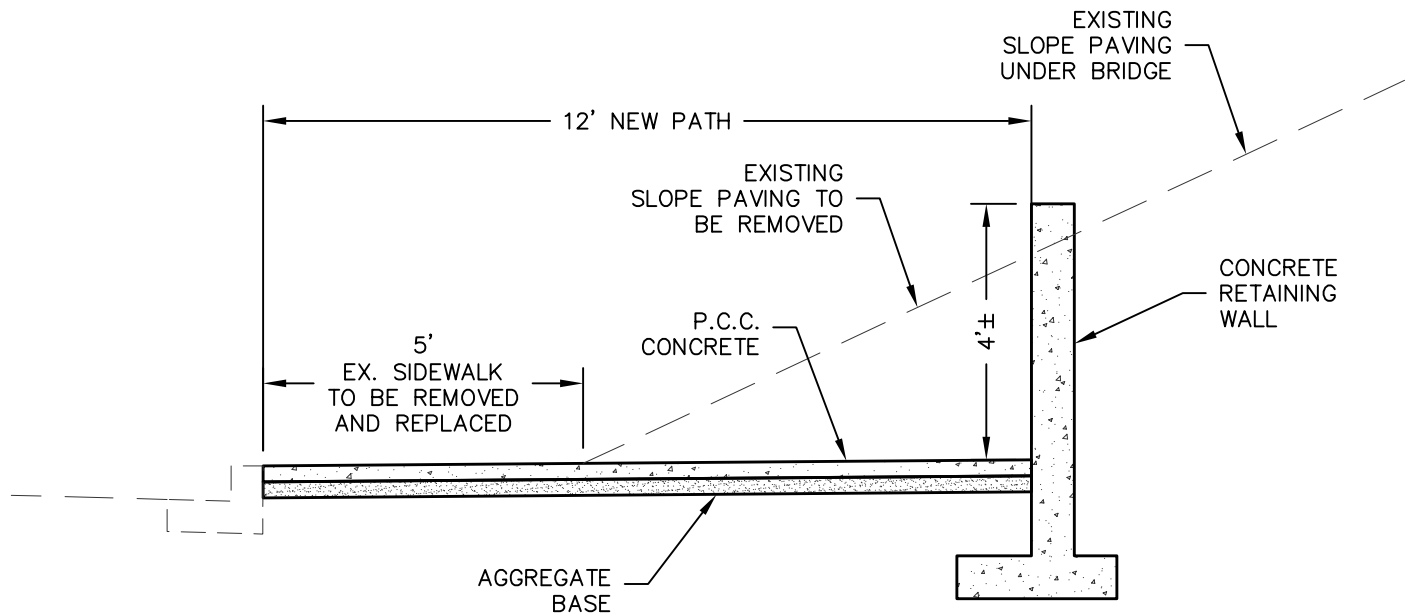
GRAPHIC SCALE
SCALE IN FEET





MULTI-USE PATH TYPICAL SECTION

SCALE: N.T.S.



MULTI-USE PATH TYPICAL SECTION

AT NORTHRIDGE DRIVE BRIDGE SCALE: N.T.S.
 (SNYDER AVE. OVERPASS SIMILAR)



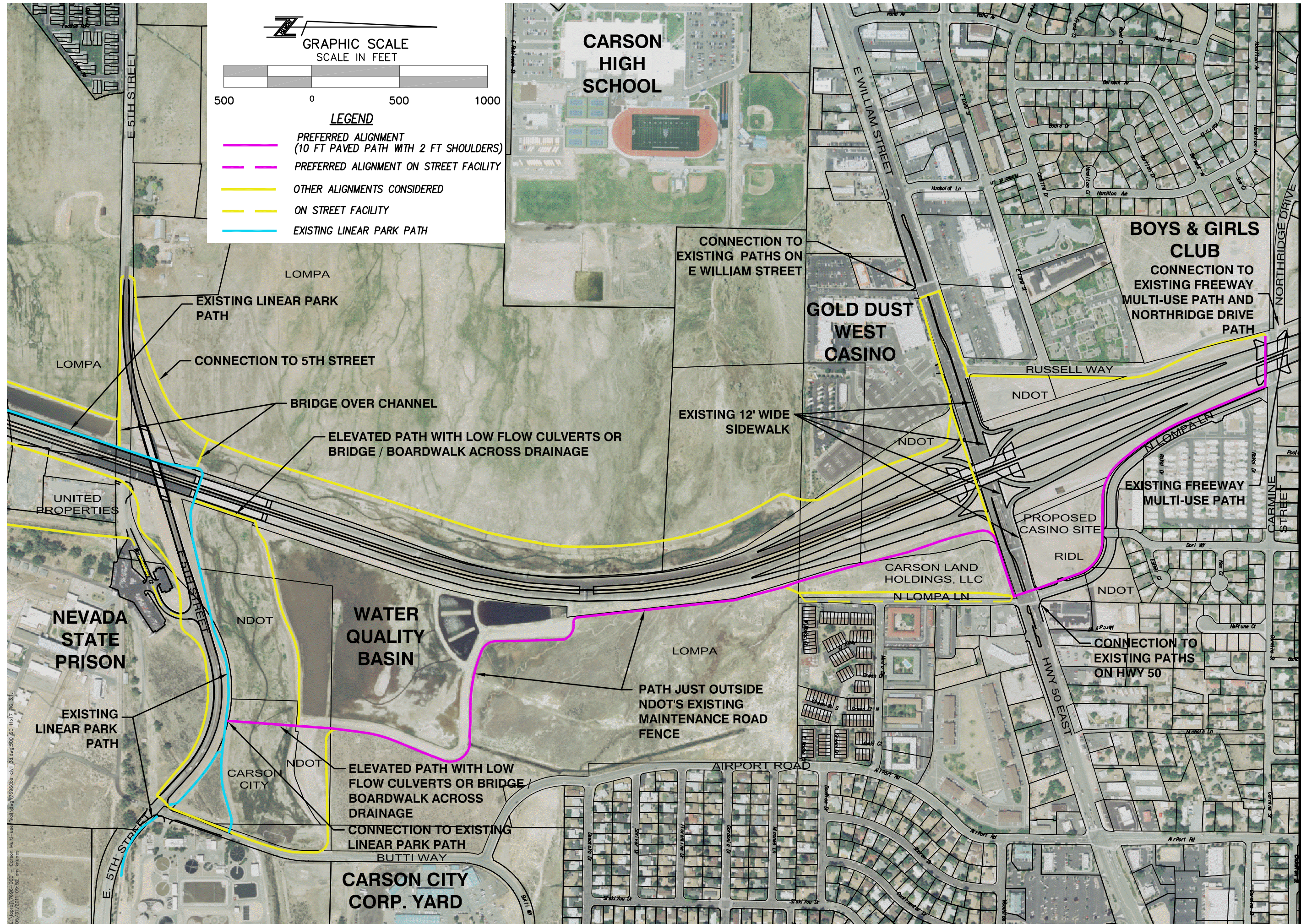
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CARSON AREA METROPOLITAN PLANNING ORGANIZATION
 CARSON CITY FREEWAY CORRIDOR MULTI-USE PATH
 ALIGNMENT ALTERNATIVES STUDY
 MULTI-USE PATH TYPICAL SECTIONS

CARSON CITY

NEVADA

Date: JUNE 2011
 Scale: N.T.S.
 Job No: 7696.000
 FIGURE 2



GRAPHIC SCALE
SCALE IN FEET

500 0 500 1000

LEGEND

- (solid magenta) PREFERRED ALIGNMENT (10 FT PAVED PATH WITH 2 FT SHOULDERS)
- - (dashed magenta) PREFERRED ALIGNMENT ON STREET FACILITY
- (solid yellow) OTHER ALIGNMENTS CONSIDERED
- - (dashed yellow) ON STREET FACILITY
- (solid cyan) EXISTING LINEAR PARK PATH



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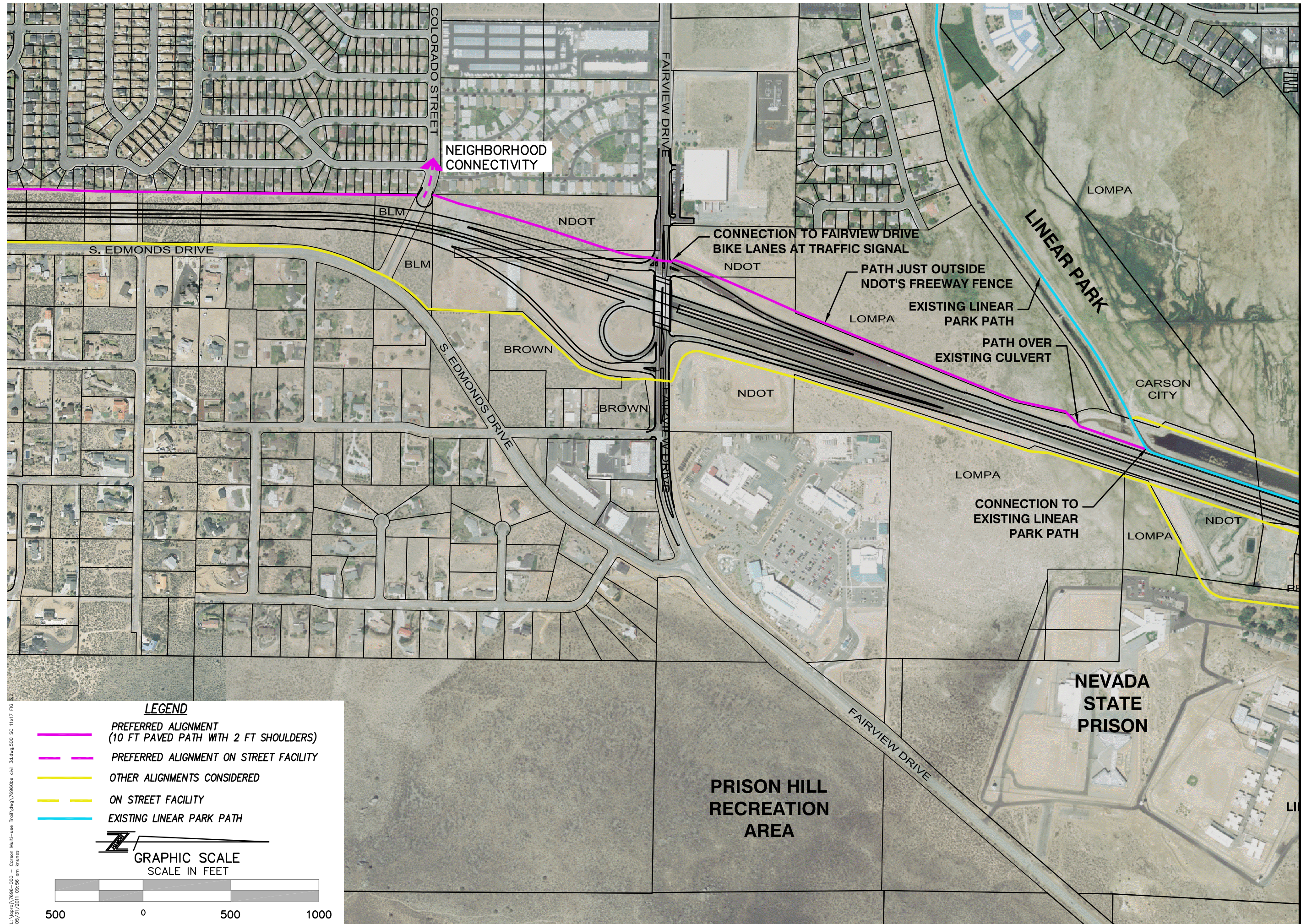
CARSON CITY FREEWAY CORRIDOR MULTI-USE PATH ALIGNMENT ALTERNATIVES STUDY

ALIGNMENT ALTERNATIVES

REV	DATE	DESCRIPTION

FIGURE 3.1

DATE: APRIL 2011
DRAWN BY: KLN
DESIGNED BY: CLM
CHECKED BY: CLM
JOB NO.: 7696.000



CARSON AREA METROPOLITAN PLANNING ORGANIZATION
**CARSON CITY FREEWAY CORRIDOR MULTI-USE PATH
ALIGNMENT ALTERNATIVES STUDY**
ALIGNMENT ALTERNATIVES

REV	DATE	DESCRIPTION

FIGURE 3.2

DATE: APRIL 2011
DRAWN BY: KLN
DESIGNED BY: CLM
CHECKED BY: CLM
JOB NO.: 7696.000

LEGEND

- PREFERRED ALIGNMENT (10 FT PAVED PATH WITH 2 FT SHOULDERS)
- PREFERRED ALIGNMENT ON STREET FACILITY
- OTHER ALIGNMENTS CONSIDERED
- ON STREET FACILITY
- EXISTING LINEAR PARK PATH

GRAPHIC SCALE
SCALE IN FEET

500 0 500 1000

L:\Vero\7696-000 - Carson Multi-use Trail\Draw\769600ba.cvl 3d.dwg,500 SC 11x17 FIG 3.2
 05/31/2011 09:56 am Klnines