



Ethanac Expressway

CORRIDOR DEVELOPMENT REPORT
EXECUTIVE SUMMARY



1. STUDY OVERVIEW

Riverside County (County), in cooperation with Riverside County Transportation Commission (RCTC) and the Cities of Lake Elsinore, Menifee and Perris, conducted a planning study for Ethanac Expressway with the intent of recommending enhancements that will improve regional east-west movement and connectivity between Interstate 15 (I-15) and Interstate 215 (I-215). Mobility would be improved by extending Nichols Road easterly from I-15 to Highway 74 and by extending Ethanac Road westerly to Highway 74.

The planning study, which is documented in the *Corridor Development Report (CDR)*, was funded with local funds from the County, RCTC, and the Cities of Lake Elsinore, Menifee and Perris.

Primary Study Elements

The planning study for Ethanac Expressway is comprised of five (5) primary study elements:

- Community Input
- Community Plan Consistency
- Traffic Analysis
- Environmental and Engineering Studies
- Project Scoping

The primary study elements are described in this Executive Summary to the Corridor Development Report. Detailed discussion is provided in the *Corridor Development Report*, *Ethanac Expressway Traffic Operations Report*, *Preliminary Environmental Analysis Report* and *Community Outreach Summary* which include details, exhibits, data, and supporting documentation.

Study Area and Corridor Description

The Ethanac Expressway corridor, which is approximately 12 miles in length, is generally located between I-15 and I-215, as shown on Figure 1. It includes a portion of Highway 74, two missing links, two bridge crossings, a railroad grade separated crossing, and interchange improvements.

The entire corridor was analyzed in support of short- and long-range corridor planning, and was based on a comprehensive traffic analysis. The entire corridor was divided into study segments for additional evaluation. The study segments represented by the dashed blue line in Figure 1 were the primary study segments. Environmental and engineering assessments were performed on the primary study segments, and were based on available information, records searches and field surveys completed within public right of way. The solid blue lines are existing roadways within the corridor that were also included in the short- and long-rang planning analysis.



Figure 1 – Ethanac Expressway Study Area

Corridor Development Process

The planning study prepared for the Ethanac Expressway is the first step in the corridor development process, as illustrated in Figure 2. The planning study resulted in identification of nine (9) study segments, including the Nichols Road and Ethanac Road connections. Each of the study segments are envisioned to be evaluated as separate projects, and would progress through the rest of the corridor development process separately, as funding becomes available and programmed. Only the

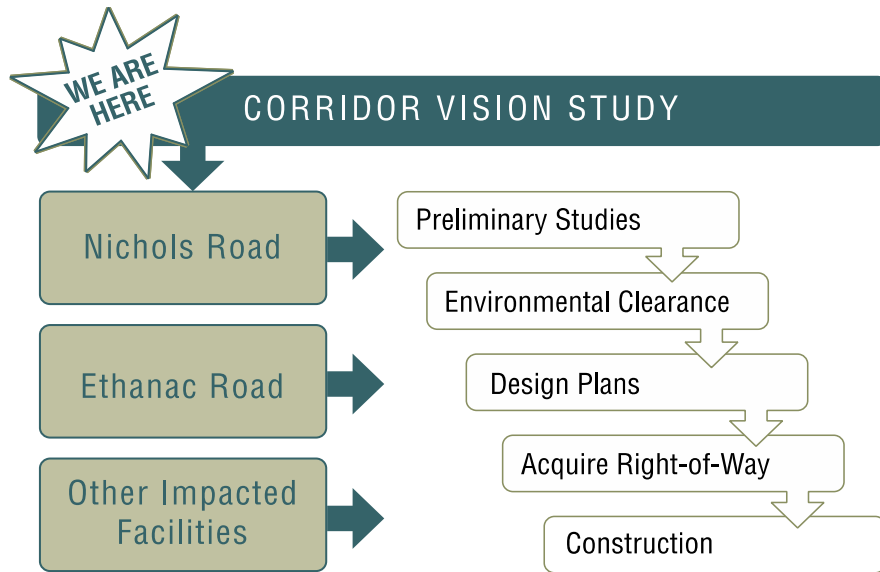


Figure 2 – Corridor Development Process

current planning study for Ethanac Expressway is fully funded. Future phases of project development include environmental (preliminary engineering and environmental studies and environmental clearance), final design (design plans), right of way acquisition, and construction.

2. COMMUNITY INPUT

An extensive community outreach program was conducted to obtain input from the potential users of the facility, residents in the area, and state, regional, and local stakeholders. The outreach effort included the following components:

- **Open House Meetings** - Four (4) meetings conducted
- **Municipal/Community Advisory Committee Briefing** - Four (4) meetings conducted
- **Technical Advocacy Groups/Community Group Briefings** - Four (4) briefings conducted
- **Online Survey** - 717 responses received
- **City Council Briefings** - Three (3) briefings planned
- **Distribution List** - 376 contacts in database
- **Project Website** - rcprojects.org/ethanac-expressway

Figure 3, illustrates approximate locations for the outreach meetings and briefings. An online survey was prepared following the meetings/briefings to gain additional public feedback. Feedback via the online survey was received from every zip code encompassing the area shown on Figure 3.

The study team received written and verbal comments from community members during and after the open houses. Overall, written and verbal comments from the community were primarily focused on traffic congestion, property impacts, transit

connections and other roadway improvements. Most participants expressed support for extending Ethanac Road to Highway 74

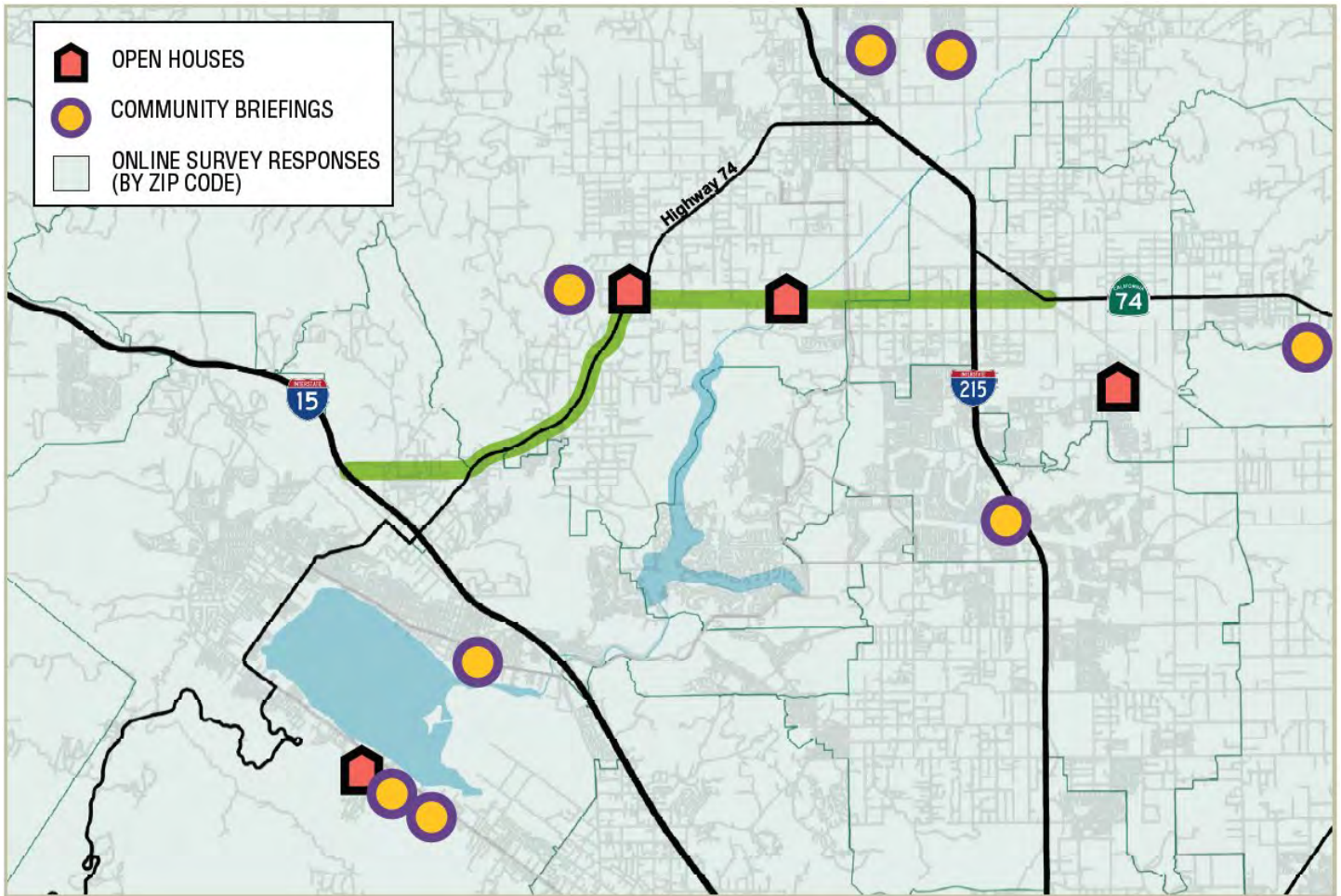


Figure 3 – Public Outreach Locations

74, but concerns were raised related to the timeline of improvements, the impacts to the existing community, and the influence on property value. Several individuals expressed concern regarding vehicles traveling at high speeds on Highway 74, thus creating unsafe conditions. There were also a few comments about the need for equestrian facilities, citing the area’s equestrian community.

Of the 717 respondents to the online survey, a total of 222 respondents provided written comments, many commenting on both Nichols Road Alternative 1 and Nichols Road Alternative 2 and on the Ethanac Road alignment. Ethanac Road received positive feedback and input on alternative connections to Highway 74. Respondents found the Ethanac Road alignment to be most “effective” at dealing with traffic and congestion. Respondents were comfortable with the design of Nichols Road Alternative 1 as there were many comments about how “direct” it appears. However, slight favor was shown for Nichols Road Alternative 2 because it avoided much of the existing community.

A separate *Community Outreach Summary* report was prepared that includes the detailed outreach approach, distribution lists, sign in sheets, electronic notifications, comments received, photographs, and the online survey.

3. COMMUNITY PLAN CONSISTENCY

A Corridor Vision was developed at the beginning of the study to provide a consistent approach for planning and conceptual design of the entire corridor. The Corridor Vision evaluated the area as it exists and is planned today, and offered an opportunity for stakeholders to contribute input for the recommendation of corridor improvements.

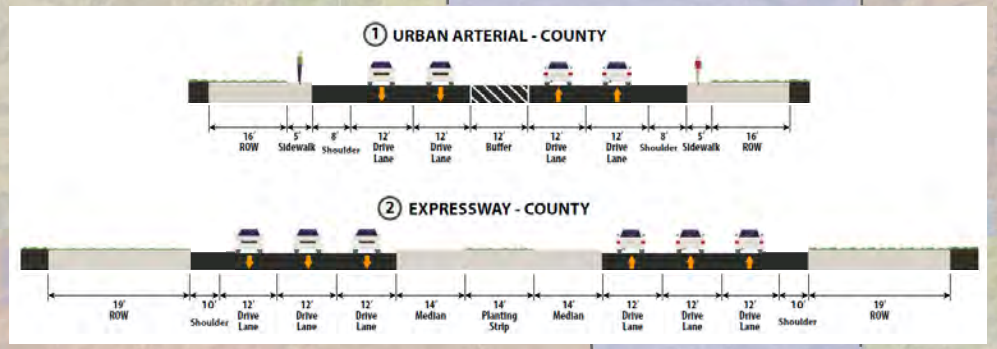
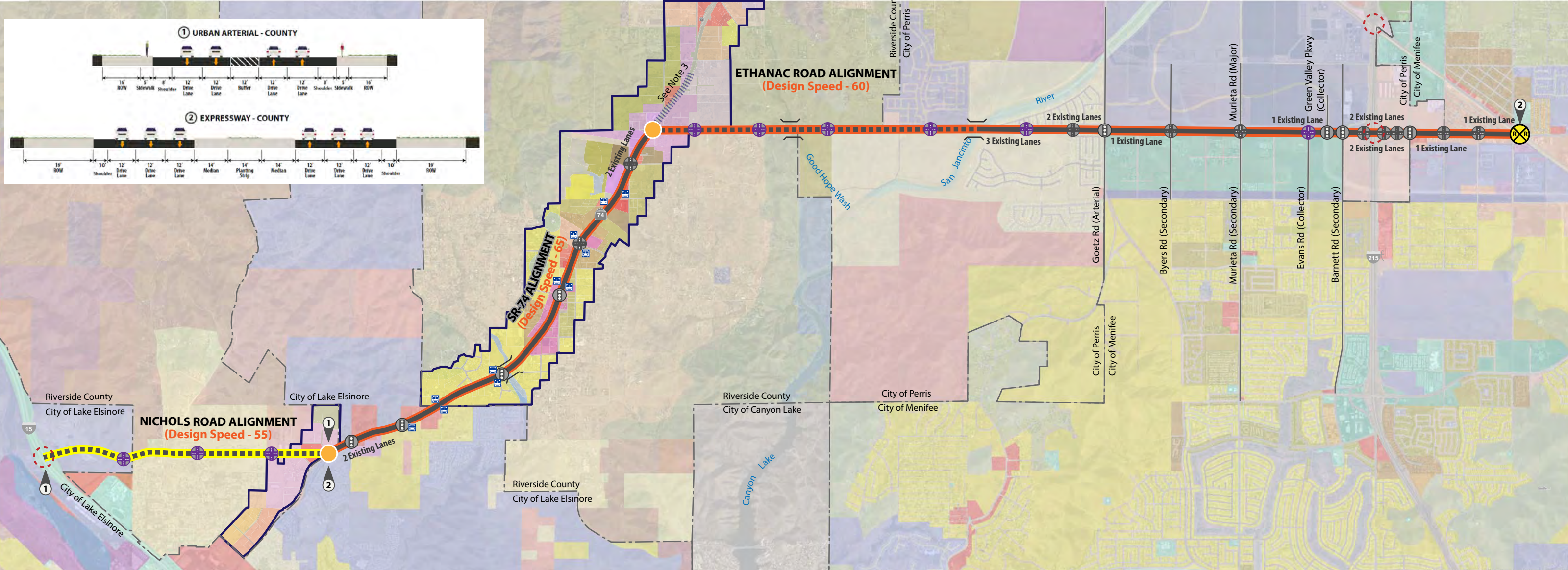
The Corridor Vision consists of several layers of data. One layer examines the currently planned land uses surrounding the corridor. Another layer identifies the proposed typical cross sections for the entire corridor. At initial preparation, the Corridor

Vision identified five (5) different typical cross sections throughout the corridor limits. Through coordination and review by the adjacent agencies, the proposed typical sections were evaluated to provide consistency. The ultimate Corridor Vision identifies two (2) consistent typical cross sections: one representing the Urban Arterial for Nichols Road, and one representing an Expressway for Highway 74 and Ethanac Road. Other layers of data on the ultimate Corridor Vision include proposed and existing intersections, and transit mobility elements.

The ultimate Corridor Vision can be found on Figure 4 and represents feedback from the major stakeholders and identifies recommendations based on the traffic analysis in terms of number of lanes, proposed intersections, and typical sections.



Ethanac Expressway



| | | | | |
|------------------------------------|--|---|---------------------------------|-----------------------|
| Future Intersection Treatment | Proposed 2 Lanes of Travel in Each Direction | Proposed Hwy 74 Community Plan Land Use | Rural Residential | Public Facility |
| Existing Unsignalized Intersection | Proposed 3 Lanes of Travel in Each Direction | Existing Interchange | Low Density Residential | Light Industrial |
| Existing Signalized Intersection | Transition Zone | Circulation Element Roadway | Medium Density Residential | Industrial |
| Future Major Intersection | Conceptual Alignment | County/City Boundary | Medium High Density Residential | Conservation Habitat |
| Existing Bus Stop | Existing Alignment | Bridge | Hillside Residential | Open Space Recreation |
| Connection Across Railroad Tracks | Existing Alignment | Cross Section Extents | Commercial Community | Specific Plan |
| | | | Commercial Tourist | Commercial Retail |

- Notes:
- 1) Proposed alignments are conceptual in nature.
 - 2) Design Speed for the proposed Ethanac Alignment and SR-74 is consistent with County Roadway Design Requirements, per Rolling Terrain.
 - 3) 1,110 ft. transition zone based on Stopping Sight Distance requirement for Design Speed per Highway Design Manual and Minimum Required Deceleration Distance for Single Lane Freeway. These requirements when used for traditional freeway deceleration are used to change driver expectation along the corridor, which is consistent with the intended goal of the proposed transition zone.
 - 4) Roadway designations shown are consistent with County General Plan and City of Perris and Menifee General Plans.
 - 5) Roadway design requirements for Ethanac in Perris/Menifee are based on County requirements.
 - 6) Roadway classification is consistent with circulation elements.



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4. TRAFFIC ANALYSIS

A comprehensive traffic study, titled *Ethanac Expressway Traffic Operations Report*, was prepared for the entire Ethanac Expressway corridor. The focus of the traffic analysis was to define an ultimate vision for the corridor, identify existing and future circulation deficiencies and document the need for corridor improvements, and assist the County with the phasing (which project elements can be built to an interim condition) and sequencing (which project elements should be delivered first) for the entire corridor.

Methodology

The Riverside Traffic Analysis Model (RIVTAM) was used to develop forecasts for the planning study. As the current version of RIVTAM is not consistent with the 2016 SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), the roadway networks and socio-economic data were reviewed for consistency and updated.

For the Proposed Base Year roadway network, the current RIVTAM Base Year roadway network was modified to more accurately reflect existing conditions in the study area. Through a comparison using aerial photography, major roadways in the study area were reviewed to verify that the number of lanes assumed in the model were correct.

For the Proposed Future Year roadway network, the General Plan Amendment 960 was obtained and utilized. This roadway network included the proposed Ethanac Expressway corridor. Therefore, to develop traffic forecasts under the No Build conditions, the proposed Ethanac Expressway corridor was removed from those scenarios. Additionally, Mid-County Parkway was removed from the model for the purposes of this traffic analysis to ensure conservative forecasts along this study corridor.

Land use associated with the Highway 74 Community Plan, a study that was in the initial stages during forecasting efforts for the Ethanac Expressway corridor, was also considered along the Highway 74 corridor in the study area. It was determined that, because planned land use changes as part of the Community Plan have not been completed at the time of this study, ultimate land use in the study area would maintain consistency with the current RTP/SCS.

Current and Future Traffic Conditions

Travel savings were estimated for the corridor improvements as tabulated in the table below and illustrated in Figure 5.

| | Distance (miles) | Time (minutes) |
|----------------------|------------------|----------------|
| Without improvements | 16.5 | 25-40 |
| With improvements | 12 | 18-30 |
| Commute savings | 4.5 | 7-10 |

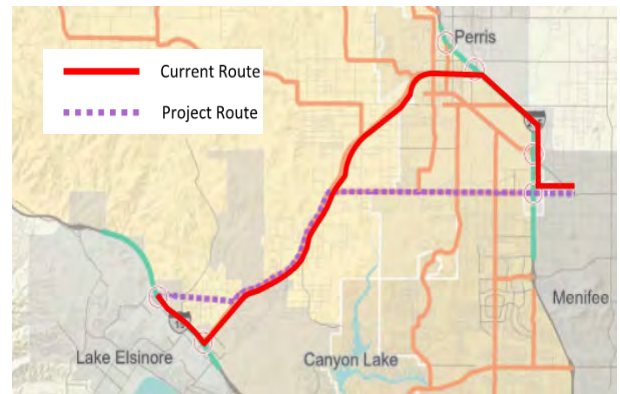


Figure 5 – Corridor Route

Existing and future project deficiencies can be seen visually by comparing Figures 6, 7, and 8. The increase in high congestion areas between Figure 6 and 7 indicate the need for the Ethanac Expressway corridor improvements. The relief in congestion seen between Figure 7 and 8 indicate the benefit of the proposed corridor improvements.

For more detail on the traffic analysis, including methodology, findings and collision history, refer to the *Ethanac Expressway Traffic Operations Report*.

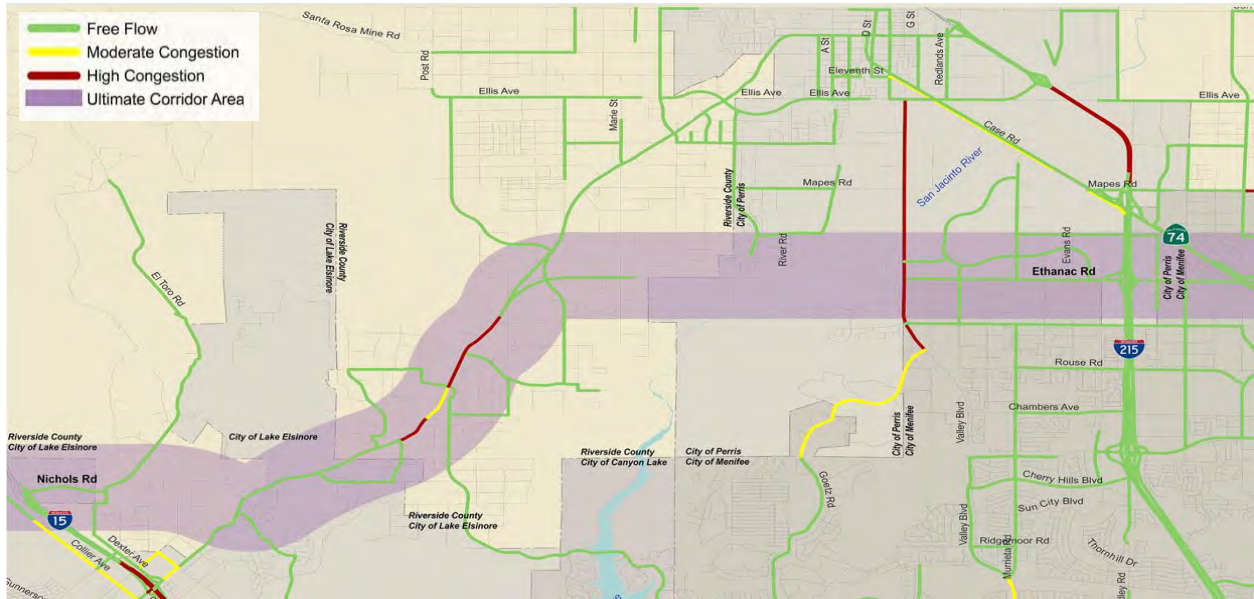


Figure 6 – Existing Traffic Conditions Without Improvements

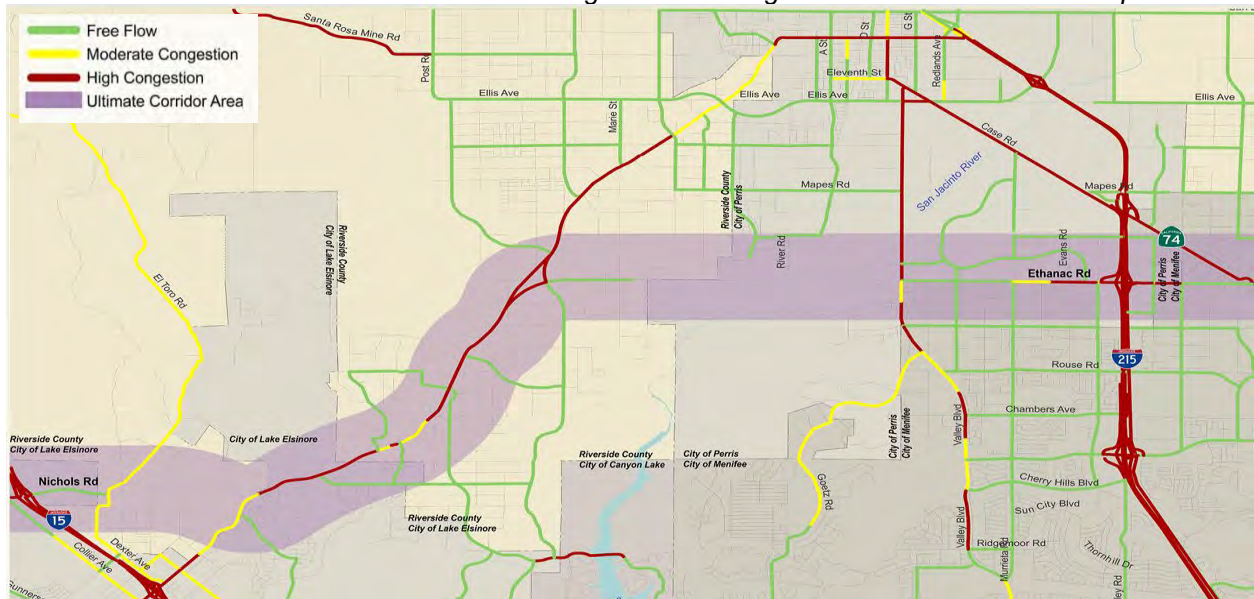


Figure 7 – Future Traffic Conditions Without Improvements

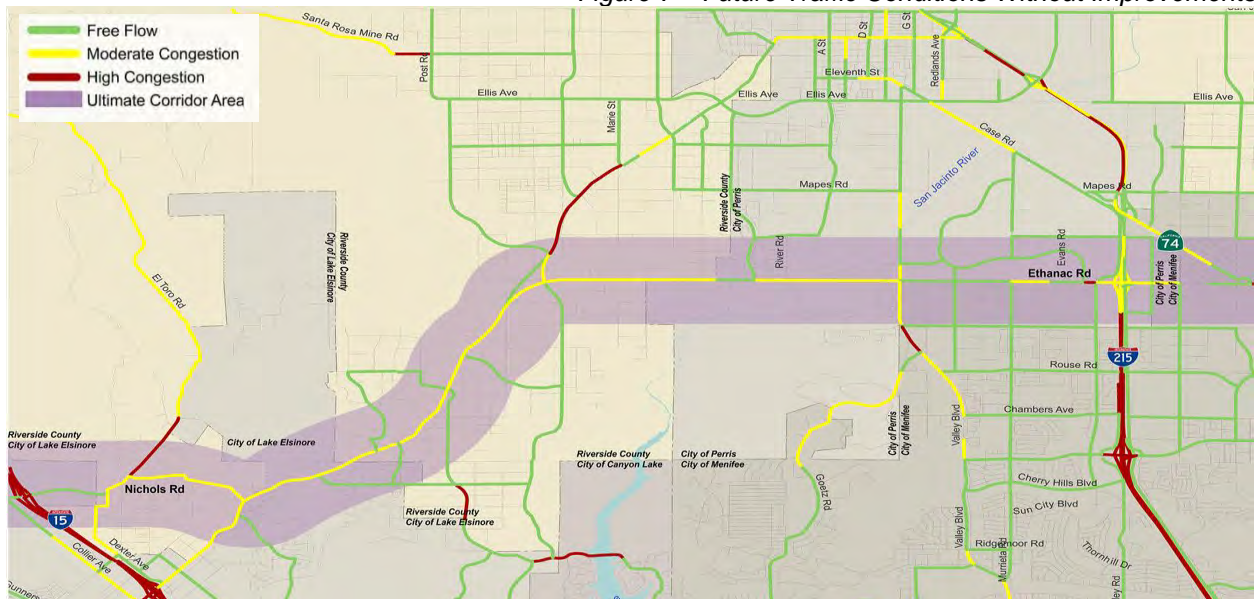


Figure 8 – Future Traffic Conditions With Improvements

5. ENGINEERING AND ENVIRONMENTAL STUDIES

Two (2) build alternatives were evaluated for the Nichols Road connection, and one (1) build alternative was evaluated for the Ethanac Road connection.

Engineering Studies

NICHOLS ROAD CONNECTION

The two (2) build alternatives identified for the Nichols Road connection was a result of a larger alternative screening process. Originally, over 50 alternatives were studied using the Quantm software design tool. The alternatives were narrowed down to a total of 20, and then evaluated using a set of scoring criteria selected by the study team. The scoring criteria included:

- Cost
- Length of roadway
- Community impacts
- Conserved lands impacts
- Earthwork

Figure 9 illustrates the 20 grey alternative alignment concepts. The two (2) blue alternatives were selected for further evaluation during the planning study.

The existing Nichols Road alignment between I-15 and the Lake Elsinore/County boundary is assumed to be part of a separate development project that is currently in the planning phase. This separate project would realign existing Nichols Road and adjust the right-of-way to match the proposed improvements. For purposes of this study, the proposed alignment and improvements along Nichols Road begin at the Lake Elsinore/County boundary and continue east to Highway 74.

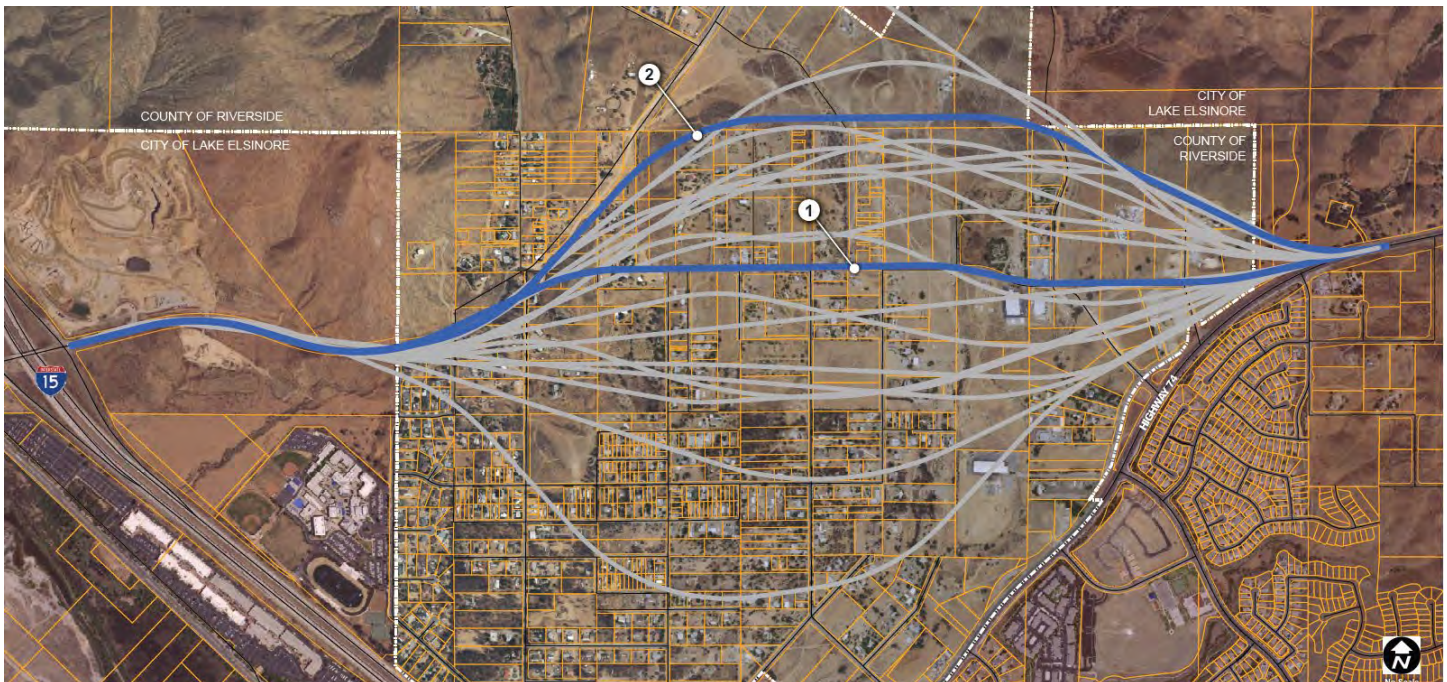


Figure 9 – Nichols Road Alternative Screening

The future traffic demand on the corridor requires Nichols Road to be a 4-lane facility at the Design Year 2045. Although the forecast traffic demand only requires a 4-lane facility, the study alternatives were developed to follow the City of Lake Elsinore's standard road classification of a 6-lane Urban Arterial. Studying the Nichols Road corridor as a 6-lane facility during this phase provides flexibility for the City of Lake Elsinore and the County to consider right-of-way reservation in the future.

The ultimate typical section that was studied for this segment is a 6-lane facility with shoulders, sidewalks, Class II bike lanes, and a multi-use path on the north side of the alignment. The ultimate corridor would have a 14-foot landscaped median, with three 12-foot lanes and a 5-foot shoulder, for a total roadway width of 96 feet curb-to-curb. A design speed of 55 mph follows the County and City of Lake Elsinore’s design standards for an Urban Arterial with rolling terrain. The roadside features will consist of a 6-foot sidewalk on both sides and a 20-foot multi-use path/trail on the north side of Nichols Road. The proposed right-of-way would be established 12 feet beyond the top of curb, per the City of Lake Elsinore standards. The cross section should be confirmed during subsequent planning and design phases. Figures 10 and 11 identify the 6-lane facility for the Nichols Road connection.

Overall, Alternative 1 consists of an alignment that follows the existing Nichols Road in Lake Elsinore and continues straight on an east-west alignment along Mermack Avenue and connects to Highway 74 near Crater Road. This alternative has balanced earthwork and moderate to high impacts to existing street crossings, conserved lands, and community impacts which consists of residential and commercial lands.

Overall, Alternative 2 consists of a northerly alignment that follows the existing Nichols Road alignment within Lake Elsinore and continues north along El Toro Road, travels east along Stonehouse Road and connects to Highway 74 at Trellis Lane. This alternative has balanced earthwork, average community impacts which include residential and commercial lands and moderate to high impacts to existing street crossings and conserved lands. Alternative 2 travels along the foothills of the mountainous terrain to the north of Stonehouse Road and will require a substantial amount of excavation.

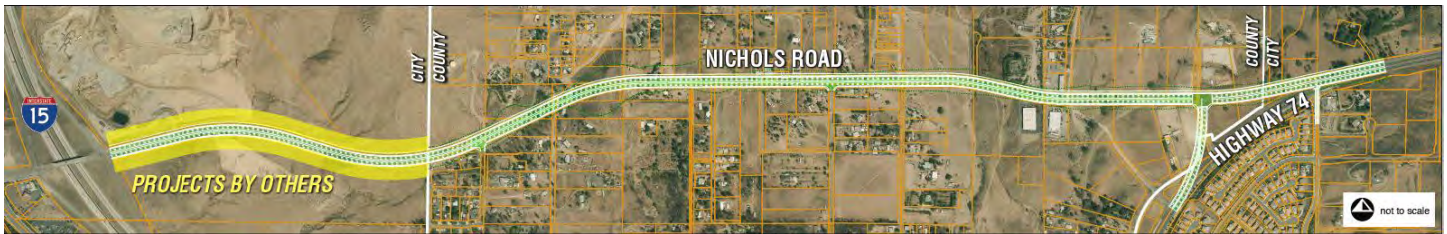


Figure 10 – Nichols Road Alternative 1

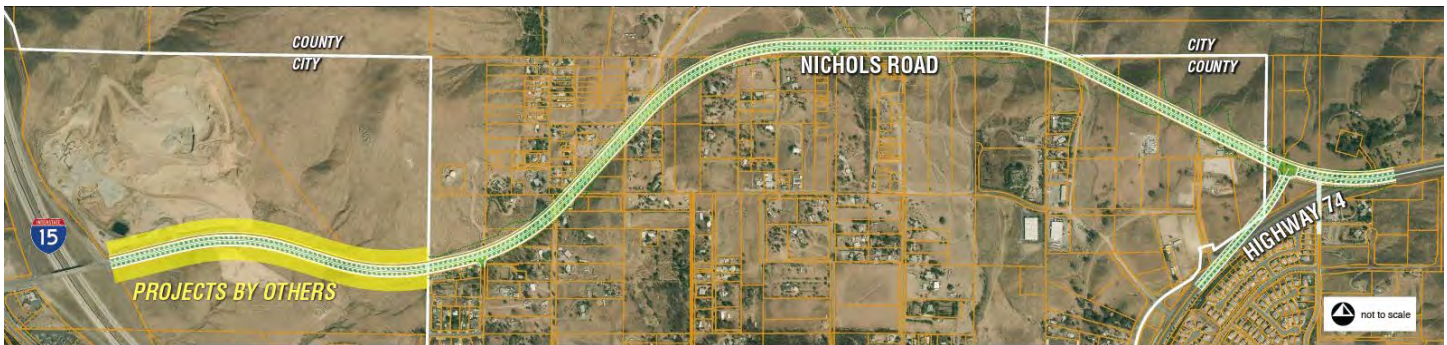


Figure 11 – Nichols Road Alternative 2

ETHANAC ROAD CONNECTION

The horizontal alignment for Ethanac Road will be a direct westerly extension of the existing Ethanac Road starting from the west edge of the new San Jacinto River bridge (to be built by others), and it will join Highway 74 to close the gap for the proposed expressway. Currently it is anticipated that the segment of Ethanac Road and the bridge over the San Jacinto River east of the Perris/County boundary line will be constructed by other public agencies and private developers.

The ultimate typical section for this segment is consistent with the County’s design standards for a 6-lane expressway with 184-foot right-of-way, and a 65 mph design speed. In the ultimate condition, this corridor segment will have a 14-foot landscaped median with a 14-foot lane adjacent to the median, two 12-foot lanes and a 10-foot shoulder in each direction for a total roadway width of 110 feet curb-to-curb. Other features from the County’s typical section include a 15-foot landscaping area behind the curb and gutter of the road followed by an 8-foot sidewalk and an additional 14-foot landscape area which

the study proposes to consider for use as a multi-use path/trail. A new bridge structure would be constructed over the Good Hope Wash.

Refer to the comprehensive *Corridor Development Report* for more detail on alternative screening, concept plans and descriptions, design variations, multimodal review, and other engineering considerations including drainage, water quality, structures, permits, utilities and geotechnical considerations.



Figure 12 – Ethanac Road Alternative

ETHANAC ROAD RAILROAD GRADE SEPARATION

The current eastern terminus of Ethanac Road ends with the connection to Case Road and forces local traffic to proceed in a southeasterly direction and does not provide direct access to SR-74. Connectivity to SR-74 and crossing the BNSF/Perris Valley Line (PVL) is a critical connection element for local circulation of traffic between this area of the county and I-215. Future planning along the PVL corridor for extension of Metrolink rail service to Hemet will be expected to preserve a grade separated crossing with 26-foot vertical clearance for roadway over rail to allow for future electrification of the commuter rail line. An undercrossing option could also be considered; however, this is a low lying area and is subject to large surface drainage flows, which make this a less desirable grade separation concept due to concerns of inundation during heavy rainfall events, long-term maintenance obligations which a pump station presents, and additional costs to the facility.

An off-alignment concept provides a context sensitive solution to avoid occupied properties, as seen in Figure 13. Additional alignment concepts have been considered in previous studies completed by the County. The Southern California Regional Rail Authority prefers the crossing to be between 5 degrees and 90 degrees (the existing roadway network is approximately 36 degrees).



Figure 13 – Ethanac Road Railroad Grade Separation Concept

Environmental Studies and Approvals

A *Preliminary Environmental Analysis Report* was prepared and documents the environmental studies and approvals that are anticipated to be required during future phases of project development. The anticipated approvals, pursuant to California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), for the Nichols Road connection and Ethanac Road connection are as follows:

| | Anticipated Document | Justification |
|--------------|------------------------|--|
| Nichols Road | EIR/"Complex" EA/FONSI | Key considerations associated with the environmental document types include right-of-way acquisition and associated potential residential and commercial displacements, as well as potential impacts to biological and cultural resources and jurisdictional drainage features. It is anticipated that a Complex EA is the appropriate level of NEPA-compliant document for the Nichols Road Corridor based on the potential for public controversy and relatively high mitigation costs, namely related to right-of-way acquisition and associated displacements. |
| Ethanac Road | EIR/"Routine" EA/FONSI | Key considerations associated with the environmental document types include right-of-way acquisition and associated potential residential and commercial displacements, as well as potential impacts to biological and cultural resources and jurisdictional drainage features. |

EIR = Environmental Impact Report (CEQA) **EA** = Environmental Assessment (NEPA) **FONSI** = Finding of No Significant Impact

Preliminary environmental assessments were performed on the Ethanac Road and Nichols Road connections. The assessments were based on readily available information, records searches and field surveys that were accessible via public right of way. A summary of findings from the Cultural and Biological assessments are summarize below:

Cultural Resources

The Ethanac Expressway corridor is considered highly sensitive for cultural resources, including tribal cultural resources. Both the Nichols Road connection and the segment of Highway 74 between the future Nichols Road connection and Ethanac Road connection are areas of particular interest. The requisite Native American consultations pursuant to Assembly Bill 52 and Section 106 of the National Historic Preservation Act would be conducted in support of the cultural resources reporting.

Biological Resources

Based on the initial biological resources assessment, both the Nichols Road connection and Ethanac Road connections are covered activities under the Multiple Species Habitat Conservation Plan (MSHCP). Due to the surrounding open habitat and presence of small mammal burrows, focused surveys for burrowing owl will likely be required in accordance with the Burrowing Owl Survey Instructions for the Western Riverside MSHCP Area for both segments. Additionally, a special-status plant focused survey report and least Bell’s vireo focused survey report are recommended during future project development for the Ethanac Road connection only.

Refer to the *Preliminary Environmental Analysis Report* for additional details regarding biological resources, Native American Coordination, Cultural Resources, Paleontological Resources, Community Impacts, Water Quality and Floodplain, Land Use, Hazardous Waste/Materials, Visual/Aesthetics, Farmlands, Air Quality, Energy and Climate Change, and Noise.

6. PROJECT SCOPING

As a result of the Engineering and Environmental Studies, Ethanac Expressway was divided into nine (9) study segments. Each study segment would lead to separate projects that would progress through the corridor development process:

| Segment | Limits of Improvements |
|--|---|
| Provide Connectivity from I-15 to I-215 | |
| 2* | Existing Nichols Road between the I-15/Nichols Road Interchange and the Lake Elsinore/County border |
| 3 | Nichols Road Extension between Lake Elsinore/County border and Highway 74 |
| 6* | San Jacinto River Bridge and Ethanac Road Extension between Perris/County border and the River Bridge |
| 5 | Ethanac Road Extension between Highway 74 and Menifee/County border |

| Optimize Corridor from I-15 to I-215 | |
|--------------------------------------|--|
| 1 | I-15/Nichols Road Interchange |
| 4 | Existing Highway 74 improvements between Nichols Road and Ethanac Road |
| 7* | Existing Ethanac Road widening between Goetz Road and I-215 |
| 8 | I-215 Ethanac Road Interchange |
| Optimize Local Circulation | |
| 9 | Existing Ethanac Road widening and Railroad Grade Separation |

Bold = Primary focus of the planning study * = Project by Others

Preliminary Construction Costs

Preliminary cost estimates were developed for the Nichols Road and Ethanac Road connections. The following tables summarizes total project costs (earthwork, pavement, drainage, traffic, structures, right of way, specialty items and contingencies) for a 4-lane facility and a 6-lane facility:

| | 4-lane (\$ Million) | 6-lane (\$ Million) |
|------------------------------|---------------------|---------------------|
| Nichols Road - Alternative 1 | \$38 | \$47 |
| Nichols Road - Alternative 2 | \$50 | \$59 |
| Ethanac Road | \$47 | \$51 |

Phasing and Sequencing Recommendations

Based on coordination with study stakeholders, it was determined that Segments 2, 6 and 7, are considered “project by others”. Additional detail on these projects can be found in the comprehensive *Corridor Development Report*. The remaining projects can be phased and sequenced as determined by the traffic analysis prepared for the entire corridor:

- Constructing the Ethanac Road connection to Highway 74 as the first improvement was reviewed but it was determined it would degrade the current poor level of service on Highway 74/Central Ave through the City of Lake Elsinore area absent additional widening of Highway 74.
- Delivering the Nichols Road connection as the first improvement reduces the demand on Highway 74/Central Avenue in the City of Lake Elsinore and does not trigger an immediate need for additional improvements.
 - *Improvements to the ramps at the I-15/Nichols Road Interchange are currently required and they are needed with or without the Nichols Road connection.*
- Extending Ethanac Road to Highway 74 as the next improvement would complete the east-west connectivity between I-15 and I-215 and would draw demand from alternate regional routes. Over time, the additional traffic on this new corridor will impact other facilities as described below:
 - *It is anticipated that the existing 4-lane Highway 74 can accommodate about three years of growth once the Ethanac Road connection is in place. At that time, a 6-lane facility would be required.*
 - *With the roadway improvements completed, the interchange’s service levels will degrade and the structures will eventually need to be widened to improve capacity.*
- Although not required to provide east-west connectivity between I-15 and I-215, the analysis has shown that a new railroad grade separation of the railroad tracks on Ethanac Road, just east of I-215, will provide continuity and a significant traffic benefit for local circulation to and from the Cities of San Jacinto and Hemet.

Delivery Approach

Based on the above phasing and sequencing recommendation, the following Delivery Approach was identified.

| |
|---|
| <p>Initial Goal</p> <p>(Connect I-15 to I-215 and improve access to/from the communities east of I-215)</p> |
| <ul style="list-style-type: none"> • Nichols Road connecting I-15 to Hwy 74 (4-lanes) • Ethanac Road connecting Hwy 74 to existing Ethanac Road (Interim 4-lanes) • Railroad Grade Separation connecting Ethanac Road to SR-74 East |
| <p>Secondary Goal</p> <p>(Maintain efficient traffic flow and avoid poor service levels along the corridor)</p> |
| <ul style="list-style-type: none"> • I-15/Nichols Road Interchange Improvements (Widen Bridge and Ramps) • Hwy 74 Improvements between Nichols Road and Ethanac Road (Widen to 6-lanes) • I-215/Ethanac Road Interchange Improvements (Widen Bridge and Ramps) • Ethanac Road Improvements (Widen to 6-lanes) |

The initial goal of the corridor improvements centers around completing the missing segments and connecting the eastern communities. Initial segments at Nichols Road and Ethanac Road may be constructed with 4-lane segments to provide the primary connection. The secondary goal aims to maintain efficient traffic flow and avoid poor service levels along the corridor. As such, improvements to the interchanges and corridor widening would be needed to ultimate width as noted in the above table.

The anticipated timeline of corridor improvements is dependent upon funding availability for the initial 4-lane gap closure connections on Nichols Road and Ethanac Road. Once the initial gap closure projects are constructed on Nichols Road and Ethanac Road, the construction timing of subsequent improvements (with the exception of the Railroad Grade Separation) can be identified. The Railroad Grade Separation can occur at any time and is not dependent upon the timing of the other projects. The following table outlines the anticipated timing of subsequent projects within the secondary goal once the initial 4-lane segments for Nichols Road and Ethanac Road are constructed.

| Secondary Goal Project Timing Dependent upon Initial Nichols Road and Ethanac Road Construction | |
|---|--|
| 3-5 years | Hwy 74 Improvements between Nichols Road and Ethanac Road (Widen to 6-lanes) |
| 4-5 years | I-15/Nichols Road Interchange Improvements (Widen Bridge and Ramps) |
| 9-10 years | I-215/Ethanac Road Interchange Improvements (Widen Bridge and Ramps) |
| 11-15 years | Ethanac Road Improvements (Widen to 6-lanes) |