

STORY

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NEVADA

MARSHALLTOWN

# U.S. HIGHWAY 63

## CORRIDOR LOCATION STUDY

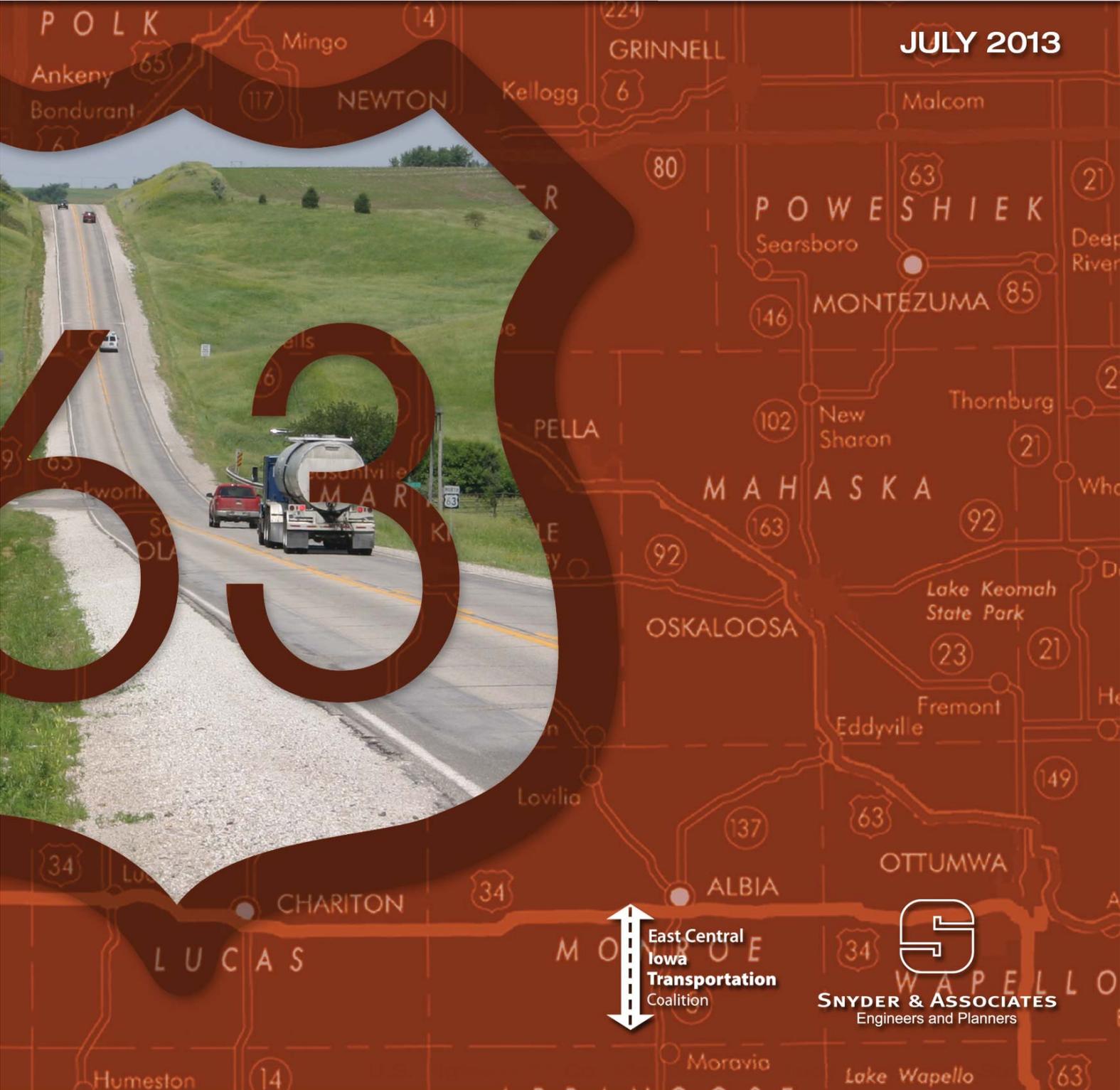
# EXECUTIVE SUMMARY

JULY 2013



East Central  
Iowa  
Transportation  
Coalition

  
**SNYDER & ASSOCIATES**  
Engineers and Planners



# Study Background

In 2009, The East Central Iowa Transportation Coalition was formed to identify transportation demands and promote transportation improvements in the East Central Iowa area. Snyder & Associates, Inc. was selected to provide professional engineering expertise towards the completion of a study to determine the specific demands of the region. In January 2011, a report of the U.S. 63 Area Transportation Study was completed. The report concluded that U.S. Highway 63 Improvements between Iowa Highway 163 and U.S. Highway 6 should be considered the highest priority in the region, as compared to improvements on Iowa Highway 21, U.S. Highway 34, Iowa Highway 92, and Iowa Highway 146. Upon coordination with the Iowa Department of Transportation (DOT), it was determined the U.S. Highway 63 Corridor Location Study should be the next step.

In 2011 the U.S. Highway 63 Corridor Location Study was started and involved further development of the purpose and need for roadway improvements throughout the corridor. The study was conducted as a pre-NEPA (National Environmental Policy Act) phase for the entire corridor from U.S. Highway 163 at Oskaloosa to U.S. Highway 6 north of Malcom. The intention of the study was to provide a preliminary overview of potential impacts for further study when individual NEPA studies are contemplated for improvements on smaller segments of the corridor.

The ultimate purpose of the U.S. Highway 63 Corridor Location Study is to evaluate route alternatives based on their fulfillment of the purpose and need and their impacts on the environment.

The corridor location study considers long-term transportation improvements that would correct functional issues and add capacity to U.S. Highway 63 in Mahaska and Poweshiek Counties in Iowa, between Iowa Highway 163 south of Oskaloosa to U.S. Highway 6 near Malcom, bringing the highway up to current engineering standards and modernizing the roadway to accommodate future traffic needs.

## Purpose and Need

### Purpose of the Proposed Action

The purpose of the proposed action is to improve the safety, efficiency, and effectiveness of the U.S. Highway 63 corridor between Iowa Highway 163 at Oskaloosa and U.S. Highway 6 near Malcom as a regional and national transportation route. Specifically within the East Central Iowa region, the purpose of U.S. Highway 63 is to provide a north-south transportation corridor that also connects economic growth centers with Interstate 80 for east-bound travel.

### Need for the Proposed Action

The need for the proposed improvements to the U.S. Highway 63 corridor is based on a combination of factors related to providing better transportation service and sustaining economic development. The proposed action is intended to meet the following needs:

#### Safety

- The vertical and horizontal alignments do not meet current primary road design standards, particularly for highways in hilly terrain with a high percentage of truck traffic.
- Crash rates are approximately 36% greater than the statewide average on U.S. Highway 63 between Oskaloosa and U.S. Highway 6. Crashes are recorded uniformly along the corridor; many can be attributed to outdated road design and alignment. Safety concerns also include presence of slow moving vehicles and lack of passing opportunities.

## Travel Efficiency

- Projected traffic – The U.S. 63 Area Transportation Study reported that U.S. Highway 63 was among the fastest-growing regional routes in East Central Iowa from 1986 to 2006. According to traffic modeling completed by the Iowa DOT, U.S. Highway 63 can be expected to carry approximately 5,000-7,000 vehicles per day by 2035. In rolling terrain, this volume warrants consideration of expansion to a four lane highway.
- Travel time – The current route of U.S. Highway 63 carries traffic through the heart of Oskaloosa, New Sharon, Montezuma, and Malcom. In each town, speed is reduced and there are stop situations in Oskaloosa and New Sharon. This causes an increase in travel time and reduces the efficiency of the highway as a freight route.
- Speed constraints – In addition to the speed reduction through town, the prevailing speed on rural sections of the highway is also reduced by the number of slow moving vehicles and inability to pass in hilly terrain.
- Pavement condition – While much of U.S. Highway 63 has been resurfaced in recent years, the remainder of the route has continued to deteriorate. Deteriorated pavement can add to the user cost of maintenance as it increases vehicle wear and tear.

## Regional Connections and Route Significance

Currently there is a need for an improved major trucking route through the South Central region of Iowa and Central Missouri. There are currently two major north/south freight routes through the State of Iowa that connect Kansas City and St. Louis to St. Paul: Interstate 35 and the Avenue of the Saints. These two highway systems travel on the east and west sides of Missouri. This allows for easy access to an interstate system for the industries along those routes, but leaves a void in the region between the routes. The U.S. Highway 63 corridor is ideal to fill this void as the north/south trucking artery between I-35 and the Avenue of the Saints. U.S. Highway 63 goes through or is near the major industrial manufacturing towns in the South Central Region of Iowa and travels through major towns in Central Missouri such as Kirksville, Macon, Columbia, and Jefferson City.



## Traffic Projection

The Iowa DOT Office of Systems Planning initially provided traffic modeling outputs for consideration. The iTRAM model uses historic traffic volumes as well as variables such as population numbers, community socioeconomic factors, land use, and roadway variables. This analysis provided Year 2035 projections.

For this corridor location study it is assumed that an improved U.S. Highway 63 would attract traffic in a manner not simply attributed to normal traffic growth. Improved pavement condition, horizontal and vertical alignments, and capacity will improve travel time and road experience and attract more traffic. In 2012, Iowa DOT Office of Systems Planning provided an updated iTRAM analysis with many of the “constraints” to the U.S. Highway 63 corridor removed (e.g. two-lane capacity changed to four lane, speed limit increased to 65 mph, etc). This analysis provided potential Year 2040 volumes with these long term corridor improvements. A summary of traffic data is provided in the table below.

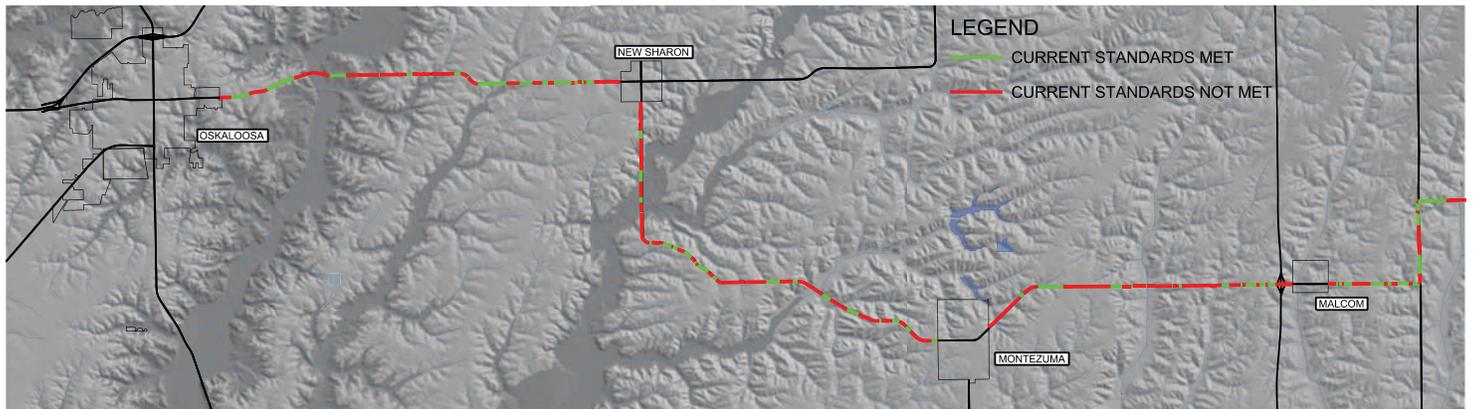
U.S. Highway 63 Corridor Segment	Iowa DOT Year 2010 Annual Daily Traffic (AADT) (Veh/day)	Projected Year 2040 Annual Daily Traffic (AADT) (Veh/day)
Oskaloosa to New Sharon	3000	7500
New Sharon to Montezuma	1350	6000
Montezuma to Interstate 80	2600	7500
Interstate 80 to U.S. Highway 6	2500	5800

## U.S. Highway 63 Crash Rates for Rural Segments

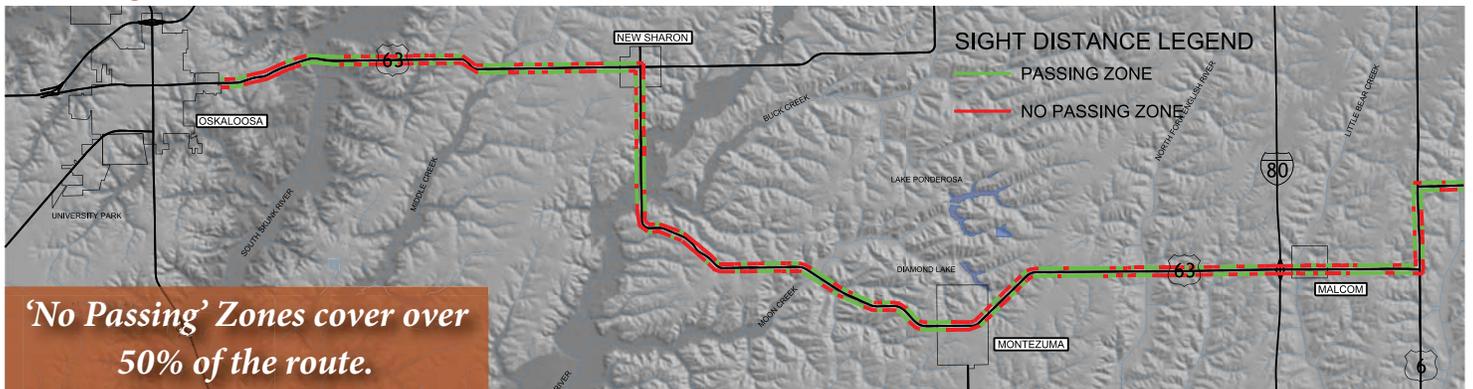
U.S. Highway 63 Corridor Segment	'10 Traffic Volume (AADT)	'07-'11 Crashes	Segment Length (mi)	'07-'11 Crash Rate (cr/HMVM)	'07-'11 Fatal+Inj Crash Rate (cr/HMVM)
Oskaloosa to New Sharon	3100	64	10	113	55
New Sharon to Montezuma	1400	33	11.5	112	44
Montezuma to Interstate 80	2800	41	7.5	107	21
Interstate 80 to U.S. Highway 6	2500	27	3.5	169	63
Statewide Average				92	26

*The crash rate within the City of Oskaloosa is 20% higher than the statewide average for urban areas.*

## Existing U.S. Highway 63 vs. Current Preferred Design Criteria for the National Highway System



## No Passing Zones



# Process Toward an Ultimate Corridor

## Alternatives Evaluation

To accomplish the ultimate purpose of the U.S. Highway 63 Corridor Location Study, it is necessary to evaluate each of the alternatives that have been identified. In addition to the primary goals introduced in Section 2.5 of the U.S. Highway 63 Corridor Location Study Report, there are several criteria that can be compared between alternatives. To evaluate the alternatives with each criteria, there are a number of factors that should be considered for a transportation facility. For this Corridor Location Study, the factors included roadway characteristics as well as environmental impacts associated with the NEPA process. The pre-NEPA factors were not studied in great detail to determine actual impacts, but rather broadly reviewed to highlight potential impacts for further study as improvements are planned and designed.

The U.S. Highway 63 steering committee also provided input on the factors considered most important for this corridor. Those factors are emphasized in the list below.

## Criteria

### • Route Performance

- *Time of Travel*
- *Highway Speed Maintained*
- *Out of Distance Travel*
- Annual User Cost for Out-of-Distance Travel

### • Economic Vitality

- *Economic Development*
- Local Road Network Impact
- Regional Connectivity
- Intermodal Opportunities

### • Economic Consequences

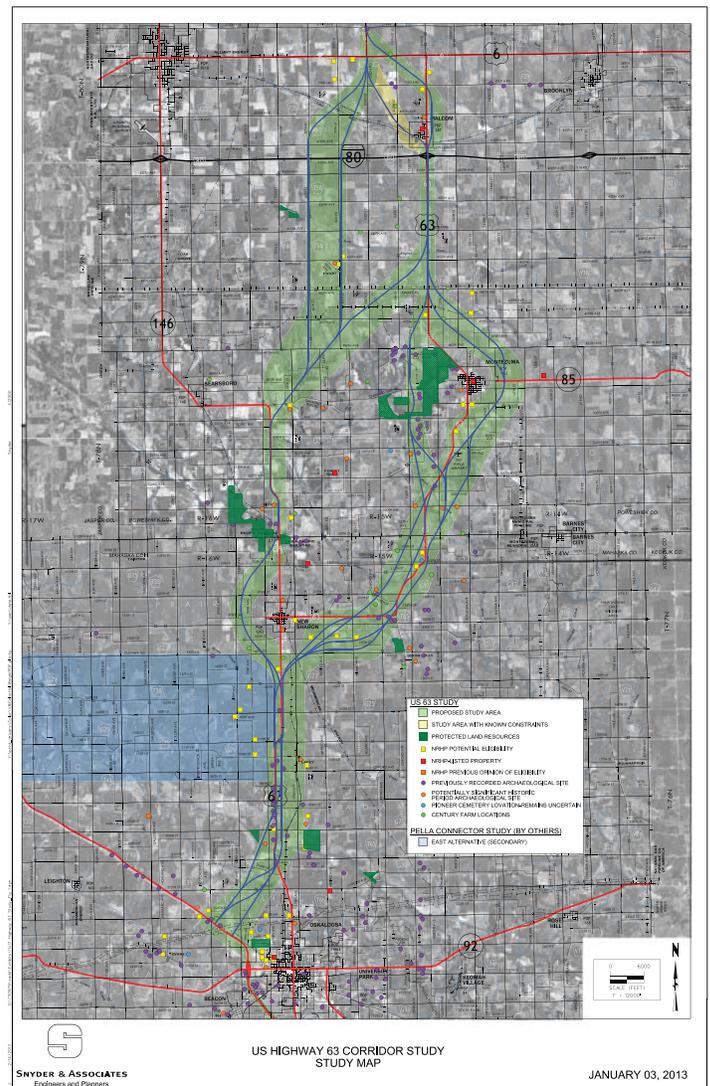
- Diagonal Severance
- Land Use Impact
- Relocations (Residential and Commercial)
- Energy Consumption
- Agriculture

### • Fundability

- *Construction Cost*
- *Phased Improvement Opportunities*
- Connectivity to Existing ROW

### • Societal Impact

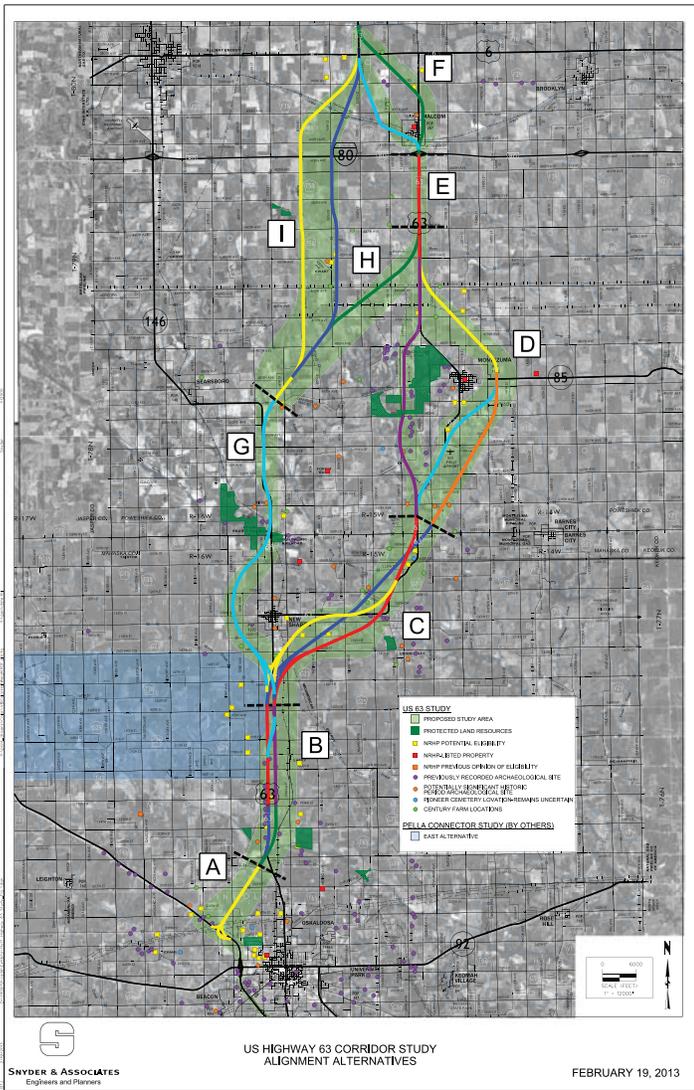
- *Proximity to US 63*
- *Avoidance of Century Farms*
- Conflict Points/Predicted Safety
- Community Impacts
- Environmental Justice
- Visual Impacts
- Air Quality
- Noise
- Regulated Material
- Cultural Resources



January 3, 2013 Study Map

### • Natural Environmental Impacts

- Surface Water/Water Quality
- Wetlands
- Special River Designations
- Floodplains/Hydraulics
- Threatened & Endangered Species
- Section 4(f) Property



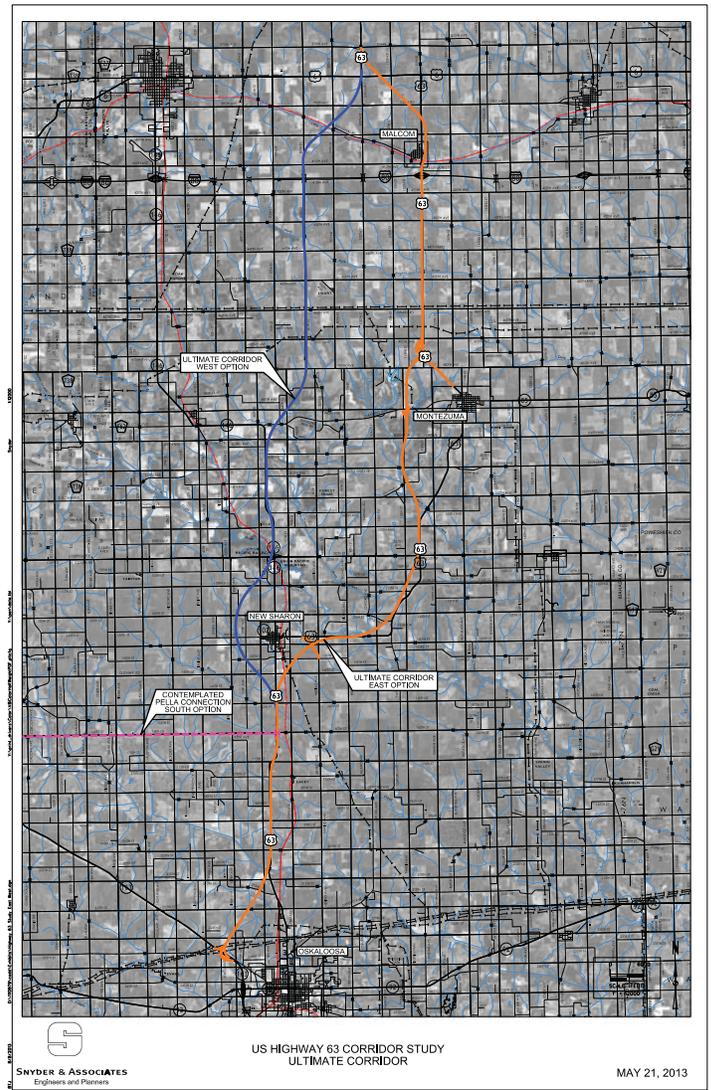
February 19, 2013 Alignment Alternatives

### Method of Evaluation

The criteria and factors listed previously created the foundation for evaluating the alternatives. Every factor was assigned a metric that would be used to compare the alternatives against each other. A weight was also assigned to each factor to illustrate its importance in the overall evaluation. Once the metrics were computed for each factor, the alternatives were given a rank, based on how they compared with the other alternatives. This rank was then multiplied by the weight to establish a score for that factor. A summation of the scores for each alternative was calculated and provides the basis for the final evaluation results.

The evaluation was first done by segment, to determine the best overall alignment created by combining the segments.

The segment evaluation concluded with a determination of the preferred West Alignment Option and the preferred East Alignment Option, as shown on the Ultimate Corridor Map.



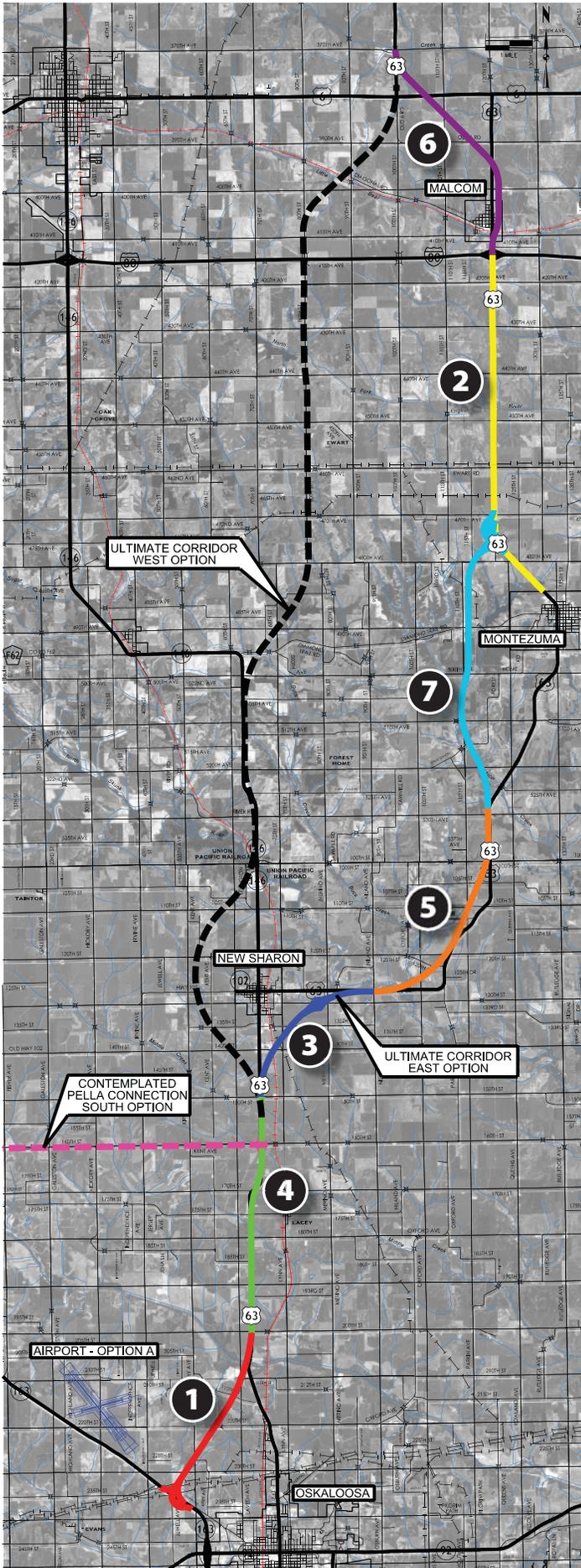
May 21, 2013 Ultimate Corridor

### Ultimate Corridor

The east and west corridor options were then compared using the same criteria and scoring method used to evaluate the segments. The two options were relatively equal in scoring, so other factors were reviewed and discussed with the affected entities to determine a single “Ultimate Corridor” for future planning and development.

Two major factors influence the determination of the east option as the Ultimate Corridor. First, an early emphasis on following the existing U.S. Highway 63 corridor as much as possible was found to yield a better potential for interim improvements toward the final goal of a fully updated facility. The second factor was the social and economic impact of retaining the existing route. Numerous existing businesses and their future planning is dependent on the proximity of U.S. Highway 63.

# Priority Improvements



U.S. Highway 63 Ultimate Corridor Priorities

## Priority 1

### U.S. Highway 63 Oskaloosa NW Bypass

The largest inhibitor to the use and effectiveness of U.S. Highway 63 in the study area is the portion of the route through the City of Oskaloosa. U.S. Highway 63 maintains its original route through the City's historic downtown square, through a tight, downtown intersection with Iowa Highway 92. Accommodation of freight traffic, in particular, is troublesome in this area.

The envisioned U.S. Highway 63 Bypass will utilize much of existing Iowa Highway 163 (part of the Des Moines to Burlington expressway corridor) to bypass Oskaloosa to the west. North of the existing Iowa Highway 163 and Iowa Highway 92 interchange, a new interchange is proposed to divert U.S. Highway 63 traffic on a new alignment roadway to reconnect to existing U.S. Highway 63 north of Oskaloosa.

**Proposed Construction:** Construct full interchange at U.S. Highway 63 and Iowa Highway 163. Configure interchange to accommodate ultimate 4-lane section. The cross section must reduce to 2-lanes at existing U.S. Highway 63 north of Oskaloosa. The constructed mainline capacity through the length of the bypass should be determined based on design level traffic projections during the NEPA or preliminary design process. Oskaloosa anticipates development pressure in that quadrant of the City, particularly given proximity of U.S. Highway 63, Iowa Highway 163 and the proposed regional airport.

**Proposed Right of Way:** Acquire right of way width suitable for a 4-lane expressway.

**Order of Magnitude Total Project Cost** ..... \$25,100,000

## Priority 2

### Functional and structural improvements of U.S. Highway 63 from Montezuma to Interstate 80, and corridor preservation activities for a future U.S. Highway 63 Montezuma Bypass.

The analysis toward a preferred "Ultimate Build" improvement of U.S. Highway 63 yielded two viable alternative alignments, an east alignment using much of the existing U.S. Highway 63 general route, and a west alignment following a portion of Iowa Highway 146, then new alignment north to Interstate 80 and U.S. Highway 6.

The key factor which makes the east alignment along existing U.S. Highway 63 viable is the future consideration of an available bypass corridor around Montezuma. If no corridor is available, the west alignment option following Iowa Highway 146 is preferred. Additional study of the bypass route with significant public input is proposed, along with corridor preservation activities of the desired location.

The segment of existing U.S. Highway 63 from Montezuma to Interstate 80 exhibits the most severe pavement distress remaining in the corridor. In addition, the segment has been studied for other functional and safety concerns. Near term structural improvements to this segment are needed, and emphasis should be given to functional and safety improvements. Consideration of improvements toward a "super two" facility would be long lasting toward an appropriate level of service for the future.

**Proposed Construction:** Overlay or replacement of existing pavement. Strong consideration should be given to super-two improvements to correct geometric and sight distance deficiencies. New construction required at the reverse curves per current design standards.

**Proposed Right of Way:** Corridor preservation activities are proposed for a future Montezuma bypass. Activities can include acquisitions of opportunity, with diligence in zoning and development to preserve the existing corridor. For the segment from Montezuma to Interstate 80, consideration should be given to acquire right of way for a future 4-lane expressway as right of way for the current construction is explored.

**Order of Magnitude Total Project Cost** ..... \$21,980,000

### Priority 3

#### U.S. Highway 63 New Sharon Bypass

Another significant functional constriction on existing U.S. Highway 63 is the right angle turn intersection with Iowa Highway 146 in New Sharon. Freight traffic attempting to make the turn in downtown New Sharon is restricted by available space, particularly with other traffic, pedestrians, and on-street parking in proximity. With the potential for a future Montezuma Bypass secured as noted in Priority 2, the bypass alignment can occur southeast of New Sharon between portions of the existing U.S. Highway 63 corridor.

It is anticipated that the removal of the southern constriction on U.S. Highway 63 at Oskaloosa by the proposed U.S. Highway 63 Oskaloosa NW Bypass may create a more urgent need in New Sharon if traffic volume increases as predicted.

**Proposed Construction:** New highway on new alignment is proposed. Design capacity of the New Sharon bypass should be determined during the NEPA process and preliminary design phase.

**Proposed Right of Way:** Acquire right of way for a 4-lane expressway.

**Order of Magnitude Total Project Cost** ..... \$14,180,000

### Priority 4

#### U.S. Highway 63 Improvements from Oskaloosa to New Sharon

U.S. Highway 63 north of Oskaloosa has the highest existing traffic counts of any portion of U.S. Highway 63 in the study area. This is partially due to the tendency of traffic to split between Iowa Highway 146 and U.S. Highway 63 at New Sharon, depending on destination. This trend would likely continue until U.S. Highway 63 is improved as a through route as part of the Commercial and Industrial Network, and National Highway System. As such, the traffic and safety needs are greater on this segment from Oskaloosa to New Sharon.

**Proposed Construction:** Opportunities include improvements to a super-two configuration, “have two, add two” construction for a 4-lane expressway or full 4-lane reconstruction based on the design level traffic projection at the time of project development.

**Proposed Right of Way:** As any of the above improvement requires right of way acquisition, acquire width suitable for a 4-lane expressway.

**Order of Magnitude Total Project Cost** ..... \$17,310,000

### Priority 5

#### U.S. Highway 63 Improvements from New Sharon to Montezuma

This segment features the most antiquated geometry and vertical profile in the study area. Single vehicle accidents are predominant. Only 27% of this section meets current preferred design criteria. This section also has the least availability of passing zones. Increasing freight traffic would benefit significantly from geometric and capacity improvements.

**Proposed Construction:** New road on new alignment is required to accommodate current primary highway design standards. Super-two or 4-lane

expressway construction can be determined by traffic projection at the time of project development. Consider interim improvements from the proposed bypass into Montezuma, depending on the anticipated timing of the bypass construction.

**Proposed Right of Way:** Acquire right of way suitable for a 4-lane expressway.

**Order of Magnitude Total Project Cost** ..... \$26,790,000

### Priority 6

#### U.S. Highway 63 Improvements from Malcom (Interstate 80) to U.S. Highway 6

The improvement of route performance on U.S. Highway 63 does not end at Interstate 80 if the overall goal is to make U.S. Highway 63 a significant north-south transportation corridor consistent with the Commercial and Industrial Network and National Highway System designations. Improvements would include alignment adjustments to eliminate right angle intersection turns at U.S. Highway 6. An improved, through-movement corridor would enhance the ability of U.S. Highway 63 north of the study area to continue as an important freight corridor to Waterloo.

**Proposed Construction:** The slight, east bypass of Malcom shown on the map is problematic and without corridor preservation activities may be precluded in the future. Consideration should be given to capacity improvements from the interchange through the developed part of Malcom. New alignment is proposed north to existing U.S. Highway 63 at U.S. Highway 6.

**Proposed Right of Way:** Consider corridor preservation activities east of Malcom. Acquire right of way for a 4-lane expressway north of Malcom.

**Order of Magnitude Total Project Cost** ..... \$20,990,000

### Priority 7

#### U.S. Highway 63 Montezuma Bypass Construction

Traffic along existing U.S. Highway 63 is not required to stop in Montezuma, although travel speed is reduced through the city. As the rest of U.S. Highway 63 is improved and traffic increases additional intersection controls may be required. Ultimately, a bypass of Montezuma is envisioned to the immediate west following a major utility corridor between Diamond Lake and Lake Ponderosa.

**Proposed Construction:** It is reasonable to assume that by the time the Montezuma bypass is warranted and programmed, new 4-lane construction is recommended.

**Proposed Right of Way:** Acquire remaining right of way needed for 4-lane expressway.

**Order of Magnitude Total Project Cost** ..... \$60,750,000

### Priority 8

#### Improvement of all sections of U.S. Highway 63 to an “Ultimate Build” 4-lane expressway, access controlled corridor.

For the construction of each of the Priority projects mentioned above, it is assumed that design level traffic projections will be made to appropriately determine the capacity needs of the corridor, whether they be a “super two” configuration, or a full, 4-lane divided roadway. Traffic projections outlined in this study indicate the ultimate configuration should include four lanes. If a super-two facility is specified, right-of-way purchase should not preclude an ultimate 4-lane section.

## Implementation

Iowa DOT senior staff leadership indicated a desire to move forward with two projects within the study area of U.S. Highway 63 at a meeting March 13, 2013. Iowa DOT District 5, which includes Mahaska County, will begin work on the U.S. Highway 63 Oskaloosa NW Bypass NEPA study. Iowa DOT District 1, which includes Poweshiek County, will design pavement improvements from Montezuma to Interstate 80. Construction of the concrete overlay could be as early as the 2014 construction season. Construction of the NW Bypass of Oskaloosa is likely six to eight years away.

These projects, and the Oskaloosa NW Bypass in particular, may fundamentally alter the traffic pattern and usage of U.S. Highway 63. The corridor must be monitored to determine the appropriate timing for additional improvements contemplated in the list of priorities.

## Advisory Board

### Jerry Nusbaum

Mahaska County Engineer

P: 641.672.2897

E: nusbaum@mahaskacounty.org

### Beth Danowsky

Mahaska Community Development Group

P: 641.673.2058

E: beth.danowsky@musco.com

### Michael Schrock

City of Oskaloosa Manager

P: 641.673.9431

E: michael.schrock@oskaloosaiowa.org

### Jon Sullivan

Oskaloosa Area Chamber and Development Group

P: 641.672.2591

E: jsullivan@oacd.org

### Greg Gordy

Mahaska County Supervisor

P: 641.673.3469

E: gordy@mahaskacounty.org

## Iowa DOT Liaisons

### Christy VanBuskirk

Iowa DOT – District 5 Local Systems Engineer

P: 641.469.4017

E: christy.vanbuskirk@dot.iowa.gov

### Jason Huddle

Iowa DOT – District 5 Planner

P: 641.469.4007

E: jason.huddle@dot.iowa.gov

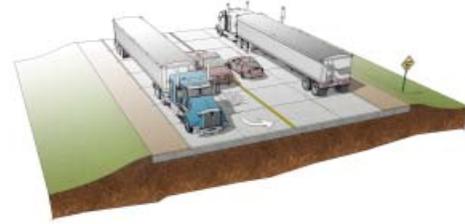
### Andy Loonan

Iowa DOT – District 1 Planner

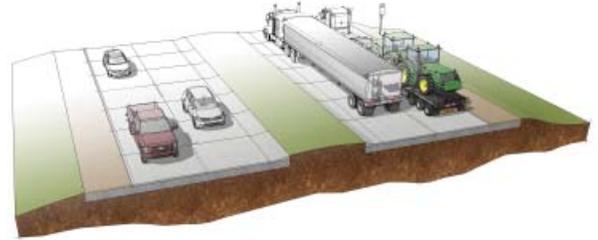
P: 515.239.1996

E: andy.loonan@dot.iowa.gov

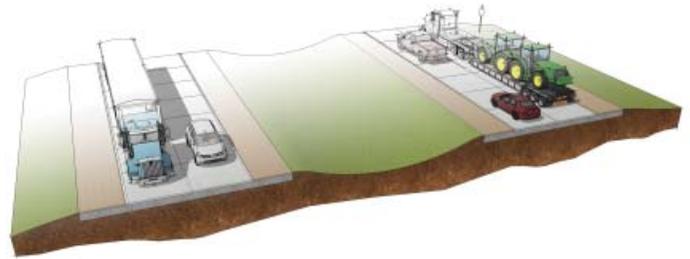
## Lane Configuration Alternatives



2-LANE RURAL ROADWAY WITH TURN LANE & CLIMBING LANE



4-LANE RURAL ARTERIAL



4-LANE RURAL EXPRESSWAY

## East Central Iowa Transportation Coalition

City of Oskaloosa  
City of Montezuma  
City of Malcom  
City of New Sharon  
City of Pella  
Mahaska County  
Poweshiek County  
Cargill



**SNYDER & ASSOCIATES**  
Engineers and Planners

For more information about this project contact:  
Snyder & Associates, Inc.  
1-888-964-2020 | [www.snyder-associates.com](http://www.snyder-associates.com)