University Avenue

Response from Iowa DOT to Questions and Comments from City Council Meetings, December 17 & 18, 2012

We were pleased to present the alternatives for University Avenue to the Waterloo City Council on December 17th, and the Cedar Falls City Council on December 18th. We heard some excellent questions from both city councils. This document is a summarized response to some of the questions raised at those meetings.

1. Why are we doing this study?

The pavement in this corridor is in poor condition and needs to be replaced. The pavement requires a complete rehabilitation; an overlay is not an option. As with any roadway, the corridor, the surrounding roadway network, and the land uses along the corridor have changed since the previous projects in the 1960s and 1980s. Reconstruction should consider a design that serves the current and future needs of the corridor. There is a documented desire to provide better pedestrian and bicycle facilities. Better pedestrian and bicycle facilities make transit a more attractive mode choice. The needs for this project include:

- Improve pavement and bridge conditions in the corridor;
- Enhance safety at intersections;
- Provide bicycle and pedestrian access and mobility in the corridor;
- Improve traffic flow; and
- Support economic growth and revitalization.

As part of the NEPA and Concurrence Point process, FHWA and other agencies concurred with these needs in March 2012.

This project is an excellent opportunity to not merely replace pavement but to make a corridor that is safe, efficient, and aesthetically pleasing for various vehicle type and users, including automobiles, mass transit, pedestrians, casual and commuter bicyclists, and truck traffic.

2. Why change from six lanes to four lanes or, in some locations, two lanes?

It is important that any road be designed for the needs of that road. Providing extra lanes beyond what is necessary creates additional conflict points, additional capital and maintenance costs, and increased crossing distances for vehicles and pedestrians. The previous 2010 *University Avenue Corridor Study*[1] also proposed a four lane roadway.

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[1] "University Avenue Corridor Study". AECOM, in coordination with INRCOG, the Iowa DOT, and the cities of Cedar Falls and Waterloo. August 2010

Traffic volumes are based on historic traffic counts (2005, 2008, and 2009) and October 2011 traffic counts, projected to 2040 volumes using the annual growth rate consistent with the 2010 *University Avenue Corridor Study*. At the west end of the project, from the IA 58 interchange to Valley Park Drive, the annual average daily traffic (AADT) reaches 30,000 vehicles per day, with a large volume of turning traffic for the ramps and Valley Park Drive. From Valley Park Drive to Ansborough Drive, the traffic fluctuates from 18,500 to 26,500 AADT. East of Ansborough, the land use changes significantly: Ansborough to Fletcher is primarily residential, and there are no access points between Fletcher and US 63. The changing land use pattern is reflected in the traffic volumes, which decrease to 7,000 AADT east of Fletcher Avenue for design year 2040. The base capacity of a travel lane is 8,000-10,000 AADT for an arterial roadway; many factors are then considered to calculate the capacity of a travel lane at critical locations for a specific design.

The lanes proposed in the alternatives reflect the traffic needs of each segment, including capacity, turning lanes and their storage length needs, and corridor consistency. For more information, see the *IA 934 Traffic Conditions Analysis Report* provided by Kittelson & Associates, Inc.

3. What are some of the benefits and drawbacks of Traffic Signal Optimization?

Benefits: Traffic Signal Optimization allows for a series of traffic signals to be coordinated and timed to best fit the current traffic demands. A common cycle length reduces stops and delays and allows for vehicles to travel smoothly through adjacent signals, and may be varied depending on time of day and traffic volumes. By providing more uniform travel speeds, interconnected signal systems can decrease accidents, reduce fuel consumption, and increase roadway improve traffic flow.

Drawbacks: The primary focus of Traffic Signal Optimization is to improve and coordinate traffic signals along the main roadway corridor, which means that minor cross streets may experience more delay. This is especially true for minor street left turns, which may often be stopped when the light is green for University Avenue but there is little or no traffic. Traffic optimization becomes less effective as the space between signals increases. Traffic Signals also require maintenance; in addition to maintaining the signal equipment, the signal timing needs to be periodically reviewed and adjusted to optimize the cycles. The safety performance of signalized intersections is worse than roundabouts.

4. What are some of the benefits and drawbacks of Roundabouts?

Benefits: Roundabouts typically have lower overall delay than signalized intersections. This is particularly noticeable during off-peak hours, when a reduction in cross traffic makes it less likely that traffic will need to stop. The closed median on University prevents left-turns from driveways and some minor streets; roundabouts facilitate the U-turns needed to provide access to these locations. The geometric design of roundabouts has a traffic calming speed management effect which helps promote consistent vehicle speeds. The reduction in vehicle delay has the added benefits of reducing fuel consumption and noise and air quality impacts.

Roundabouts offer safety benefits as well. The reduced speeds and conflicts at roundabouts help to reduce the number of overall crashes. The elimination of conflict points and higher-risk conflicts (such as left-turns against through traffic resulting in broadside collisions) help reduce the severity of crashes. These factors contribute to significantly reducing the number of injury crashes at roundabout intersections versus other types of intersections. As noted by the FHWA[2], "The most comprehensive and recent study showed overall reductions of 35 percent in total crashes and 76 percent in injury crashes."[3] These results are described in greater detail in the NCHRP Report 572, "Roundabouts in the United States", available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_572.pdf. We are in the process of evaluating the corridor changes based on the Highway Safety Manual and the Texas Transportation Institute safety criteria evaluation methods to quantify potential safety performance of each alternative.

The diagram below (Exhibit 5-2 from the FHWA *Roundabouts: An Informational Guide*[4]) shows the difference in vehicular conflict points for a four-leg intersection with single-lane approaches. Conflict points are reduced from 32 to 8 at a roundabout intersection for the same location.

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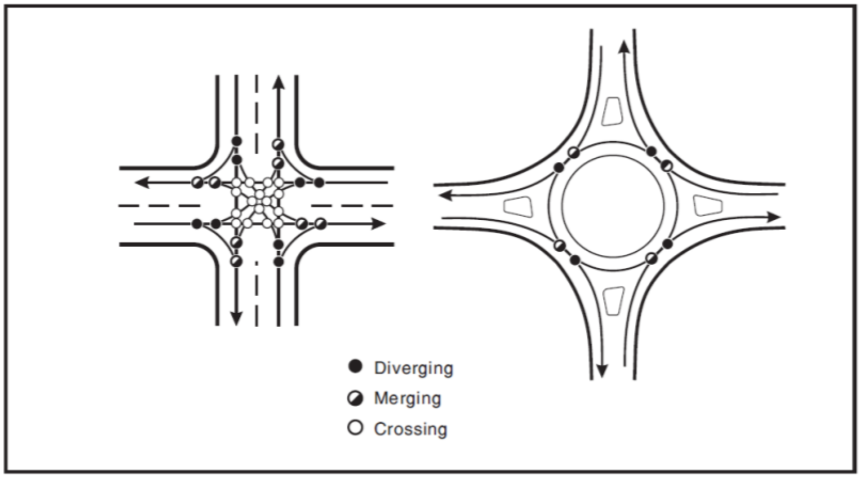
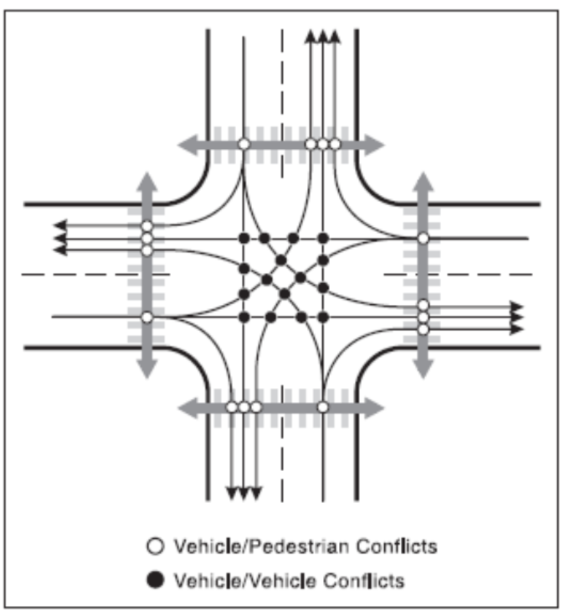
[2] "FHWA Safety Program: Roundabouts", available at http://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa10006/

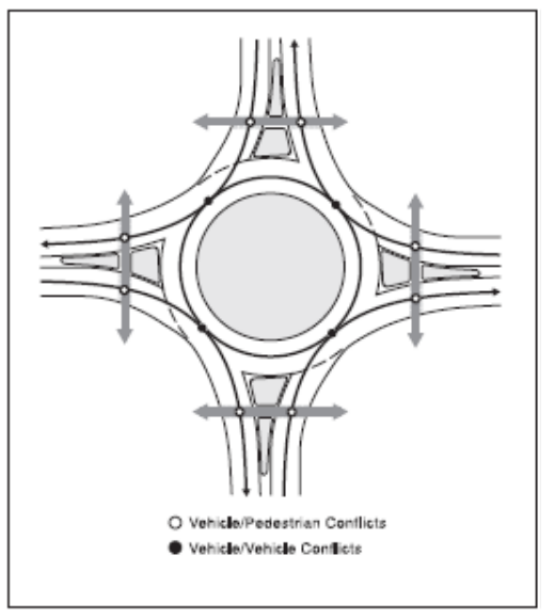
[3] Rodegerdts, L., M Blogg, E. Wemple, E. Myers, M. Kyte, M. Dixon, G. List, A. Flannery, R. Troutbeck, W. Brilon, N. Wu, B. Persaud, C. Lyon, D. Harkey, D. Carter. *Roundabouts in the United States*. National Cooperative Highway Research Program Report 572. Transportation Research Board, National Academies of Science, Washington, DC, 2007, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_572.pdf.

[4] Robinson, B., L. Rodegerdts, W. Scarborough, W. Kittelson, R. Troutbeck, W. Brilon, L. Bondzio, K. Courage, M. Kyte, J. Mason, A. Flannery, E. Myers, J. Bunker, G. Jacquemart. *Roundabouts: An Informational Guide.* U. S. Department of Transportation, Federal Highway Administration, Publication FHWA-RD-00-067, June 2000, http://www.fhwa.dot.gov/publications/research/safety/00067/index.cfm.



A similar benefit occurs for pedestrians: for an intersection with single lane approaches, conflict points are reduced from 16 at a signalized intersection to 8 at a roundabout. The following diagrams are Exhibits 5-5 and 5-6 from the FHWA *Roundabouts* Guide. These diagrams also demonstrate the better placement of the pedestrian crossing at a roundabout intersection. The crossing is placed about a vehicle length away from the intersection, so approaching drivers can focus attention first on the crossing and then on the entrance to the intersection. If there is a queue at the roundabout, pedestrians cross behind the first car waiting, eliminating the conflict with turning vehicles.





Drawbacks: Roundabouts may be unfamiliar to some drivers and thus have a period of transition after construction as users become comfortable with their use. The Waterloo/Cedar Falls area has the advantage of several existing roundabouts, increasing the public's awareness and comfort level prior to construction. Roundabouts may also require some additional right-of-way over a signalized intersection.

Similar Corridors in the U.S.: Similar roundabout corridors have been constructed at a variety of locations across the U.S. A few examples include:

- South Golden Road, Golden, Colorado*
- Springdale Street, Mt. Horeb, Wisconsin
- La Jolla Boulevard, La Jolla, in Bird Rock area of San Diego, California*
- 14th Street and Newport Avenue Corridors, Bend, Oregon*
- Cattlemen Road, Sarasota, Florida*
- Avon Road, Avon, Colorado

*Roundabout corridors specifically implemented to support retail, commercial, office, and residential users in the corridor.

Truck Navigation and Snow Removal: The roundabouts are designed for the turning radii of truck and semi-trailer vehicles. In most cases, the trucks can stay within the circulatory lanes. If the driver feels they need more room, the interior truck apron allows for off-tracking (the back tires can encroach on the apron). Depending on the landscaping design, roundabouts can offer some snow storage on the center island; otherwise, snow removal is similar to other types of intersection.

5. What factors are included in a Traffic Analysis?

The traffic analysis has many components that help us evaluate and compare the potential performance of alternatives. The primary measurement for a Traffic Analysis is "Level of Service" (LOS). The LOS rating is based on the delay experienced at the intersection. Ranges vary slightly for signalized vs. unsignalized intersections (see the *Highway Capacity Manual 2010*[5], Exhibits 18-4, 19-1, and 21-1).

It is important to note that the LOS is measured for the peak traffic volumes of the design year, in this case, the 2040 traffic in the PM Peak Hour. To design for minimum delay in rush hour traffic after 25 years would result in greatly over-capacity roadways; therefore, it is common practice to design for LOS C or D. Typically, in urban areas, the Iowa DOT strives for LOS C for peak hour design year traffic. For both this study and the 2010 *University Avenue Corridor Study*, LOS C was set as an acceptable value.

Other measurements, such as Volume to Capacity ratio (v/c), Arterial LOS and average speed are also evaluated. However, these values are for comparison purposes, an acceptable value has not been set for these measurements.

[5] *Highway Capacity Manual 2010*. Transportation Research Board, National Academies of Science, Washington, DC, 2010.

6. What were the results of the Traffic Analysis?

Kittelson & Associates, Inc. have completed their traffic analysis of the alternatives; these results are summarized in the *IA 934 Traffic Conditions Analysis Report*, December 2012[6].

As noted above, the design criteria for both this study and the previous 2010 study is a Level of Service (LOS) C at intersections. For both Alternative 2 and Alternative 4, all of the signal and roundabout intersections meet the LOS C requirement at the 2040 peak AM and PM traffic conditions (Tables 7, 8, and 11). Three stop-controlled intersections are projected to operate below LOS C in each alternative; this is caused by delay from the minor street movements. Traffic volumes at these intersections will likely not warrant signal placement. However, the adjacent traffic signals and roundabouts for each alternative create gaps in the traffic flow on University Avenue for the minor street movements to access University Avenue. It is expected that as motorists become more familiar with changes in the corridor's mainline and intersection configurations, traffic patterns will adjust to reduce delay at these three intersections.

The study included other measurements; however, the Iowa DOT does not have minimum design values for these measurements. The Volume to Capacity ratio (v/c) for all intersections in Alternatives 2 and 4 is less than 1.0. Alternative 2 (mitigated, see Report) has an average speed of 25.3 mph and Arterial LOS C. Alternative 4 has an average speed of 21.9 mph eastbound, 22.5 mph westbound, LOS D. These are acceptable values based on SUDAS[7] recommendations (Table 5C-1.02).

As a comparison, Alternative 1 (rebuilding University as-is with optimized signals) has six intersections that are projected to operate below a LOS C, including the IA 58 Southbound ramps and Ansborough Avenue.

7. Why would we need both on-street bike lanes and a multi-use trail?

Bicyclists fall into two distinct user groups. Commuters and advanced bicyclists often prefer a dedicated on-street bike lane that provides a dedicated space for increased safety and allows them to operate at maximum speed with minimum delays. Casual and family bicyclists often prefer a multi-use trail that allows slower speeds, complete separation from traffic, and the ability to stop if needed. Public involvement from both this study and the 2010 *University Avenue Corridor Study* has indicated an interest to accommodate both user groups. This is supported by the Iowa DOT and has been incorporated in the project's FHWA-approved purpose and need statement.

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[6] Daleiden, A., B. Ray, E. Ferguson. "Final Memorandum: IA 934 Existing (Year 2011) and Future (Year 2040) Traffic Conditions Analysis". Kittelson & Associates, Inc. December 2012.

[7] *Statewide Urban Design and Specifications (SUDAS).* 2013 edition. http://www.iowasudas.org/

Part of the Complete Streets initiative stems from the recognition that modes of transportation are more effective when they complement each other. For example, MET buses have bike racks. If there is no sidewalk or bike trail available from the bus stop, transit users have limited mobility before and after using the bus system.

8. How do bicycles and pedestrians navigate the intersections?

Current Design: In most areas, University Avenue is currently a six lane facility with a 16 foot median, which is often modified to provide a turn-lane at intersections. This results in almost 90 feet of crossing distance for pedestrians, with a four foot median in the middle (which is not designed as a pedestrian refuge). Sidewalk accommodations are sparse or non-existent for most of the corridor.

Traffic-optimized signal: The basic cross-section (see last page) has 84 feet of crossing distance. At intersections with a right turn lane, this distance could increase. For bicycles and pedestrians on the sidewalk or bike trail, the pedestrian signals (WALK/DON'T WALK) provide assistance in crossing. In locations without a left turn lane, a pedestrian refuge could be placed in the median. At most locations, the on-street bike lanes will be located between the through and right turning lanes (where provided) to allow for through bikes to continue with the through signal. Non-motorists using either the on-street bike lanes or off-street trail and sidewalk will still need to be aware of conflicts with turning traffic.

Roundabouts: Bike lanes are transitioned to the sidewalk ahead of the roundabout, so the basic cross-section has 72 feet of crossing distance. Bicycles and pedestrians on the sidewalk or bike trail can cross an approach in two stages; the splitter island on each approach provides a refuge area to wait if necessary. Although there is no stop signal for traffic, roundabouts provide for slower speeds than traffic signals. Additionally, the placement of the sidewalk means that drivers have completed the intersection maneuver and thus can focus their attention on the pedestrian crossing (see the diagrams above for Question 4). A high volume of pedestrian traffic may support the placement of pedestrian beacons to aid in crossing. The on-street bike lanes transition out at a roundabout in advance of the intersection. The user may either exit to the sidewalk via a small ramp to the sidewalk/multiuse path or may merge with the traffic lane to enter the roundabout as a vehicle. The merge occurs at a location where motor vehicle and bicycle speeds are similar. For more information on bicycle and pedestrian safety at roundabouts, see NCHRP 264, *Modern Roundabout Practice in the United States*[8], Chapter 8, "Issues Related to Pedestrians, Bicyclists, and the Visually Impaired", available at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_264.pdf.

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[8] Jacquemart, Georges. Modern Roundabout Practice in the United States. National Cooperative Highway Research Program Synthesis of Highway Practice 264. Transportation Research Board, National Research Council, Washington, DC, 1998, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_264.pdf.

9. What is the posted speed on the corridor?

Currently the posted speed is 45 mph. Both alternatives meet the criteria corresponding to a 45 mph design speed. A speed study may be conducted after construction to set a speed limit based on actual travel patterns during off-peak hours. For urban arterials like University Avenue, it is not expected that the posted speed limit is achievable during peak hour conditions. Roundabouts are designed to be navigated at 15-25 mph.

Vehicle speed influences crash severity and quality of service for pedestrians, bicyclists, and transit users. University Avenue is primarily an access route for the commercial and residential properties along the corridor, rather than a commuter route for traffic traveling from end-to-end between Cedar Falls and Waterloo. A more consistent and slightly slower speed through roundabouts specifically and the corridor in general reduces rear-end collisions and vehicle emissions. It may also have an economic effect on businesses by increasing visibility and improving access. In many locations across the USA, roundabouts have been specifically selected for new construction or retrofit corridor improvements to explicitly support economic growth and redevelopment (see Question 4 for a short list of examples). The roundabout corridors create a unique user environment and support business vitality. The November 2012 paper "A Study of the Impact of Roundabouts on Traffic Flows and Business" concluded that "roundabouts have a positive impact on traffic flows and business."[9] This report can be accessed at: http://ntl.bts.gov/lib/46000/46500/46594/KSU0910_Summary.pdf

10. What about just re-paving as is, with no enhancements for bicycles and pedestrians?

The pavement on University Avenue has deteriorated to the point that resurfacing is no longer an option; the entire pavement and subbase needs to be reconstructed. The current and projected traffic volumes along the corridor no longer warrant six lanes of pavement. The 2010 *University Avenue Corridor Study*, the Cedar Valley Blue Zones project and the Cedar Falls Bicycle Plan indicate a priority on making roadways useful and safe for non-motorized users, not just automobiles. In addition, a "Complete Streets" initiative on this project has been adopted from the beginning and has been supported in discussions between Cedar Falls, Waterloo, INRCOG, and the Iowa DOT.

This project is an excellent opportunity to not merely replace pavement but to make a corridor that is safe, efficient, and aesthetically pleasing for various vehicle type and users, including automobiles, mass transit, pedestrians, casual and commuter bicyclists, and truck traffic.

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[9] Russell, E., E. D. Landman, R. Godavarthy. "A Study of the Impact of Roundabouts on Traffic Flows and Business." Kansas Department of Transportation, in coordination with the Kansas State University Transportation Center and the University of Kansas. Report Number KSU-09-10. November 2012, http://ntl.bts.gov/lib/46000/46500/46594/KSU0910_Summary.pdf.

11. What's the cost breakdown for each component of the project?

Line Item costs include a 30% contingency. Please note that these costs are very preliminary; final design has not yet begun, and staging the project over multiple years may influence costs. The costs (particularly right-of-way estimates) will likely be reduced as the project design is refined.

Preliminary Cost Estimate for Construction Line Items (2012 Dollars)

		Alternative 1*	**Alternative 2**	**Alternative 4**
		6-lane, 19 signals	4-lane, 19 signals	4-lane, 6 signals & 12 roundabouts
6-lane Pavement	$17,090,000	$17,090,000		
4-lane Pavement	$12,610,000		$12,610,000	$12,610,000
On-street Bike Lanes	$2,245,000	$2,245,000	$2,245,000	$2,245,000
6' Sidewalk	$725,000	$725,000	$725,000	$725,000
10' Multi-use Trail	$1,465,000	$1,465,000	$1,465,000	$1,465,000
Signal Installation (per signal)	$210,000	$3,990,000	$3,990,000	$1,260,000
Roundabout Additional Costs (per roundabout)	$295,000			$3,540,000
Aesthetics	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Additional Misc. Costs**	$8,600,000	$8,600,000	$8,600,000	$8,600,000
	Construction	$35,115,000	$30,635,000	$31,445,000
	ROW	$9,075,000	$7,340,000	$16,315,000
	Total	**$44,190,000**	**$37,975,000**	**$47,760,000**

* Alternative 1 is for reference only, as it does not meet the Purpose and Need of the project.

** Additional Misc. Costs include lighting, signing, pavement removal, traffic control, mobilization, drainage, pavement markings, etc.

All alternatives include 6 foot on-street bike lanes, a 6 foot sidewalk on the north side, and a 10 foot multi-use trail on the south side. The line items above show the relative contribution of construction elements. Because all components of an alternative are interrelated, changing one line item will result in other changes to the alternative design. Therefore, line items are not independent.

12. Why should Alternative 4 (with roundabouts) be considered when the initial costs seem higher?

The cost estimates reflect capital and right of way costs alone and should not be the only consideration in selecting a project alternative. The project purpose and need notes a variety of project objectives. In addition, benefits over the life of the project and beyond should be considered when assessing the value of any alternative. As with any investment, a higher initial cost may not reflect the most value that can be attained for that investment.

The long-term benefits of reduced maintenance costs, reduced crash number and severity, improved traffic operations, more consistent travel speeds, and enhanced corridor character should be considered in addition to up-front capital costs. Roundabouts provide lower maintenance costs and fewer conflict points while still meeting traffic operations standards (and improving traffic operations in off-peak hours). Roundabouts reduce speeds and create environments for all users that are consistent with complete streets objectives. In some USA locations (see list in Question 4), roundabouts were specifically implemented to support retail, commercial, office, and residential users along the corridors. These specific qualities associated with roundabouts should be included in any assessment of alternatives.

13. Some of the access to frontage and side roads is being changed. What effect will that have?

Vintage roadway and frontage road designs such as that of University Avenue often include an undesirable attribute: frontage road intersections too close to the primary corridor intersection. The close spacing concentrates conflicts in high traffic volume locations creating friction, confusion, and decreased traffic operations. A traditional solution to closely spaced frontage roads is to shift their intersection with the minor street to some distance away from the primary corridor intersection. This fundamental principle is independent of the type of intersection treatment along the primary corridor.

The key to a vibrant commercial district is access management. A single well placed and well managed access point is often preferable to multiple access points with poor placement or poor traffic flow. If an access is too close to an intersection, the conflicts between turning traffic create delays and safety issues. By routing traffic a half-block farther to a backage road, conflicts, driver stress, and delay are reduced.

Other changes can improve operations in addition to the improving the location of frontage roads. Creating T-intersections simplifies intersections and reduces vehicle and pedestrian conflicts. An example of this change is placing T-intersections at Falls and Sager Avenue. By eliminating the opposite leg, conflict points are reduced from over 30 to less than 15 at each intersection. This also reduces conflicts for pedestrians by eliminating a roadway crossing. At the same time, it opens up this area of the corridor for redevelopment opportunities due to the improved corridor character and traffic operations.

The *Access Management Awareness Program Phase II Report*[10] reviewed access management case studies at locations in Iowa. The report specifically assesses the effect of access management features on local businesses, and noted that the projects where access management features were constructed resulted in:

- A 10-70% reduction in crash rates per vehicle miles traveled (Table 4)
- A 25% reduction in injury crash rates (Table 6)
- Improved levels-of-service during peak hours (Table 8)
- Improved retail sales in the corridor compared to the rest of the community (Figure 12)
- 80% of corridor businesses reporting an increase or no change in sales after projects (Table 10)
- 80% of corridor businesses reporting no customer complaints about access after projects (Table 11)
- 90-100% of motorists surveyed had favorable opinions about access management improvements after the projects (Table 12)

The report is available at:
http://www.ctre.iastate.edu/research/access/phaseii/whole_report.pdf

The KTran paper referenced in Question 9 specifically address the impact of roundabouts in a business corridor. Surveys of areas with roundabouts installed concluded that, in general, "roundabouts are good for business."[11]

14. How were the video simulations of the corridor generated?

The video simulations were generated using the projected PM peak hour 2040 traffic volumes and VISSIM traffic simulation software. In some cases, the volume of pedestrian, bicycle, or truck traffic was increased in order to be shown in the video and give a better representation of how those modes would operate in relation to the vehicular traffic. Although the video is based on the traffic model simulation, it should be considered representative of the model, and should not itself be used for traffic analysis. The same traffic is used for both alternatives and thus both videos.

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[10] Maze, T., D. Plazak. *Access Management Awareness Program Phase II Report*. Center for Transportation Research and Education, Iowa State University, Iowa Department of Transportation. Iowa DOT Project TR-402, CTRE Management Project 97-1. December 1997, available at: http://www.ctre.iastate.edu/research/access/phaseii/whole_report.pdf.

[11] Russell, E., E. D. Landman, R. Godavarthy. "A Study of the Impact of Roundabouts on Traffic Flows and Business." Kansas Department of Transportation, in coordination with the Kansas State University Transportation Center and the University of Kansas. Report Number KSU-09-10. November 2012, http://ntl.bts.gov/lib/46000/46500/46594/KSU0910_Summary.pdf.

15. What has been the public involvement so far?

As part of the 2010 *University Avenue Corridor Study*, a public survey was conducted in Fall 2008, public meetings were held in December 2008 and October 2009, and meetings were held with stakeholders, Waterloo City Council, Cedar Falls city departments, and the Black Hawk County Metropolitan Area Transportation Policy Board. A four lane roadway section, signals and roundabout intersection treatments, changes to frontage road access, on-street bike lanes, and a multi-use trail, and corridor aesthetics were all considered as part of that study.

As part of this Environmental Assessment study, public information meetings were held in December 2011 and August 2012. Several meetings with the Local Advisory Council (comprised of staff from Waterloo, Cedar Falls, and INRCOG) have been held, as well as ongoing dialog with local interest groups. A public hearing will be held to share the results of the Environmental Assessment and the preferred alternative for the project with the public and project stakeholders.

16. Do both cities have to pick the same alternative?

This is an opportunity to provide a unified look to the University Avenue corridor. In that light, it would be preferable for Waterloo and Cedar Falls to choose the same alternative, both in traffic design and aesthetic treatments.

The cities do not have to pick the same alternative, nor does each city does not have to pick an alternative as shown. Adjustments can be made to components such as intersection type or local connections. Roundabout corridors offer a cumulative effect in creating a sustained driving environment. An isolated signal or roundabout is less effective than a series of coordinated intersection designs. The proposed alternatives reflect analysis on the entire corridor as a system and the location and design of intersections were optimized for each alternative.

To proceed with clearing the environmental area, and thus allow for the project to move forward, a preferred alternative must be selected. To keep current project schedule, the cities should select their preferred alternative (with any desired modifications) by the end of February, 2013. This will allow design to begin after the completion of the Environmental Assessment and Public Hearing to be complete in early Summer 2013.

17. How common are Complete Streets projects in Iowa?

Iowa DOT has completed many projects where the design has been influenced by local interests and needs. Many past projects have incorporated significant access management features, and these features have commonly been beneficial to both road users and business owners. Incorporating sidewalks, trails and aesthetic features into highway corridors has become commonplace. “Complete Streets” is the latest descriptive term for a highway design process that is responsive to the many functions that modern urban highway corridors provide. This general movement, in which highway designs go beyond basic application of design standards and give more consideration to local conditions and needs, started many years ago and was known under other terms such as “Context Sensitive Design”.

The proposed alternatives for this project provide the opportunity to meet the needs and vision for University Avenue. The concepts may be a change for University Avenue and unique to Iowa, but many similar corridors have been constructed across the country with great success.

18. What are the next steps?

- February 2013 – Cities select Preferred Alternative
- Spring 2013 – Cities begin selection of aesthetic details
- May 2013 – Complete Environmental Assessment
- June 2013 – Public Hearing for Environmental Assessment, Preferred Alternative
- Summer 2013 – Finding of No Significant Impact (FONSI) completed
- Summer 2013 – Design work could begin on Preferred Alternative

INRCOG has offered to assist in coordinating communication between the cities and the DOT. Please send questions or comments to:

- Kevin Blanshan, Director of Transportation and Data Services, Iowa Northland Regional Council of Governments, 319-235-0311, kblanshan@inrcog.org

DOT Staff:

- Vicki Dumdei, P.E., District 2, District Engineer
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- Gretchen Ivy, P.E., HNTB
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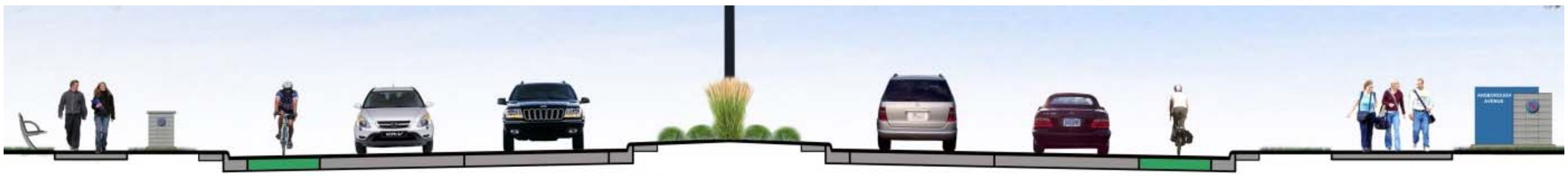
Proposed typical section for both Alternative 2 and Alternative 4, with on-street bike lanes

This cross section is an example of a typical section with dimensions based on Iowa DOT design standards. The Iowa DOT Office of Design Manual is available online at http://www.iowadot.gov/design/dmanual/manual.html; design criteria are discussed in Chapter 1C-1. Adjustments would be made at intersection approaches for turn lanes, and at bus stop and driveway locations. Adjustments may also be made to minimize right-of-way needs or impacts to adjacent businesses and access points. For example, the widths of the median, curb and gutter, buffer sections, and lane widths could be adjusted to reduce the total cross section width. These changes can have other effects and would need to be investigated further.



6' Side-walk	12' Buffer Section, Curb & Gutter	6' Bike Lane	12' Travel Lane	12' Travel Lane	2' Curb Unit	16' Median	2' Curb Unit	12' Travel Lane	12' Travel Lane	6' Bike Lane	12' Buffer Section, Curb & Gutter	10' Multi-use Trail	

Not to Scale