DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-2921(4) Troup
P.I. No.: 350990
South LaGrange Bypass

OFFICE: Engineering Services

DATE: November 28, 2007

FROM: Brian K. Summers, PE, Project Review Engineer BKW

TO: Brent Story, P.E., State Road and Airport Design Engineer

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
1	Shorten/realign Pegasus Parkway to Whitesville Road/S.R. 219	$284,193	No	Results in impacts to a resource that is on the National Register of Historic places.
2	Four-lane the entire project	-$7,883,610 (cost increase)	No	Traffic does not justify a four lane facility at this time.
3	Buy right-of-way for two lanes in lieu of four	$3,885,411	No	This would not accommodate future expansion of this facility. This project is currently in the Right of Way Acquisition Phase.
4	Clear right-of-way for four lanes	-$305,172 (cost increase)	No	One of the "During Construction" Environmental Commitments in the EA states that the County will only clear enough land to build the proposed two-lane facility.

ALT #	Description	Potential Savings/LCC	Implement	Comments
5	Locate a utility corridor to preclude future conflicts	Design Suggestion	No	The extent of possible Utilities on this facility is not fully known at this time. The locations where they can be placed are limited by the Environmental Document.
6	In certain areas, build new two-lanes in order to keep existing lanes for maintenance of traffic	-$36,139 (cost increase)	No	Results in additional costs. Because of the low traffic volumes, it is anticipated that this work can be done under traffic without major interruptions to the traveling public.
7	Eliminate the third lane on South Lagrange Loop between Old Hutchinson Road and Orchard Hill Road	$109,542	No	Based on the storage and taper length requirements in GDOT Construction Detail M-3 there would not be very much of the "third" lane that could be eliminated.
9	Reduce the width of Pegasus Parkway/CR 304 between Orchard Hill Road and Whitesville Road/S.R. 219	$110,742	No	Based on the storage and taper length requirements in GDOT Construction Detail M-3 there would not be very much of the extra width that could be eliminated.
10	Divide the project into two projects – one on each side of the "exception"	Design Suggestion	No	There doesn't appear to be any advantages to splitting the projects into two separate projects.

ALT #	Description	Potential Savings/LCC	Implement	Comments
13	Reconfigure the intersection of U.S. 29/S.R. 14 and Old West Point Road	$256,995	No	This is a safety concern. This is a new location roadway and the area is quickly going to commercial developments. This would result in a 61 degree skew.
14	Minimize the dedicated lanes at the intersection of U.S. 29/S.R. 14 and South Lagrange Loop	$512,435	Yes	This should be done.
15	Eliminate the driveways from the acquired properties	Design Suggestion	Yes	This should be done.
17	Reduce the amount of improvements at the intersection of S.R. 109 and South Lagrange Loop	$193,355	No	Based on the HCS Analysis, eliminating the Right Turn Lanes at the S.R. 109 intersection would result in a failing Level of Service.
18	Eliminate crown on typical section	Design Suggestion	No	The project that this project ties to, which is under construction, has a crowned section.
19	Provide clearing, grading and drainage for four lanes	-$5,836,229 (cost increase)	No	One of the "During Construction" Environmental Commitments in the EA states that the County will only clear enough land to build the proposed two-lane facility.
20	Use a 24-foot median in lieu of a 44-foot median	$300,714	No	Redesign costs would minimize the savings and would result in a significant delay to the Project's schedule. This project is in the Right of Way acquisition phase.

ALT #	Description	Potential Savings/LCC	Implement	Comments
24	Shorten the CSX Railroad bridge for only two lanes	$339,740	No	This would better accommodate the future expansion of this facility and would minimize the need for Railroad coordination in the future.
25	Grade separate the new South Lagrange Loop and U.S. 29/S.R. 14 Intersection	-$2,277,516 (cost increase)	No	Results in a significant cost increase and any redesign at this stage would result in a significant delay to the Project's schedule. This project is in the Right of Way acquisition phase.
27	Signalize the new South Lagrange Loop and Old West Point Road Intersection	-$90,825 (cost increase)	Yes	This should be done.
30	Use Concrete Pavement versus Asphaltic Concrete Pavement	$3,572,789	Yes	This would increase initial costs. The cost savings results from life cycle cost savings and is realized over a 35 year time span.
31	Provide a two-lane right-of-way and roadway from S.R. 109 to the beginning of the "exception" and a four-lane right-of-way and roadway from "exception" to Orchard Hill Road.	-$715,065 (cost increase)	No	One of the "During Construction" Environmental Commitments in the EA states that the County will only clear enough land to build the proposed two-lane facility.

A meeting was held on November 14, 2007 and Shrujal Amin with Moreland Altobelli, Brent Story, Jason McCook, and Brad McManus with Road Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided by Moreland Altobelli on November 27, 2007.

The results above reflect the consensus of those in attendance and those who provided input.

Approved: _____ **Date:** 11/1/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
Brad McManus
Steve Wyche
Lamar Pruitt
Marc Mastronardi
Ken Werho
Laura Rish
Lisa Myers

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE STP-2921(4) Troup County
P.I. No. 350990

OFFICE Road Design

DATE November 1, 2007

FROM Brent A. Story, P.E., State Road & Airport Design Engineer

TO Brian Summers, P.E., Project Review Engineer

SUBJECT REQUEST FOR V.E. STUDY

A VE study was held on project STP-2921(4) from April 24 through the 27, 2007. Attached, in tabulated format, are the recommendations of the VE study team as well as the Office of Road Design's decisions regarding their implementation. We are asking that you schedule an implementation meeting at your earliest convenience in order to discuss the Departments' decision regarding those recommendations. Thank you.

BAS:MBM

Attachments

Alt. No.	Description	
1	Shorten/realign Pegasus Parkway to Whitesville Road/State Route 219.	
Original Design	The original design of Pegasus Parkway ties into Whitesville Road/ State Route 219 approximately 2000 feet from the southbound ramps intersection with Interstate 85 (I-85).	
Alternative Proposed	Realign/shorten Pegasus Parkway to tie into Whitesville Road/SR 219 approximately 1400 feet from the southbound ramp intersections of I-85.	
	Advantages	**Disadvantages**
	• Reduces construction cost • Reduces construction time slightly • Reduces distance to 1-85 • Reduces travel time slightly	• Moves intersection closer to the southbound ramp intersections of 1-85 • Eliminates an existing asset • Pegasus Parkway Loss of known traffic pattern
Recommendation	Due to the proximity of the currently proposed alignment to the Fannin-Truitt-Handley Place Historical Resource, which is listed on the National Register of Historic Places, this recommendation would result in damages to a historic resource. An environmental commitment was requested by FHWA that orange barrier fencing be placed around the entire resource, which falls into the area being recommended in this alternative. Any further shift towards the resource could result in a Section 4(f) finding. **Road Design's decision to implement: No**	

Alt. No.	Description	
2	Four-lane the entire project.	
Original Design	The current design calls for the construction of a two-lane roadway for the entire length of the project, except the area between Orchard Hill Road and Whitesville Road/State Route (SR) 219. The total length is approximately three miles. The project also indicates the right-of-way being purchased will accommodate a four-lane rural road section.	
Alternative Proposed	Since the right-of-way for four-lanes is already being purchased, construct a four-lane rural roadway section for the entire project length.	
	Advantages	**Disadvantages**
	• Provides for future expansion • Doubles capacity of new facility • Improves level of service • Precludes future encroachments	• Increases cost • Increases design and construction time
Recommendation	The traffic in this area does not currently warrant the use of a four-lane section. As such, the Need and Purpose of the project being four lanes could not be justified. In addition, the project exception area of this project was let for construction in September 2007 as a two-lane facility (PI Number 0008292). This suggestion has been considered and the current design was chosen because of the traffic projections. It was decided to save the money on Right of Way costs by buying the 4 lane Right of Way and build the extra 2 lanes once the traffic projections warranted such a facility. **Road Design's decision to implement: No**	

Alt. No.	Description	
3	Buy right-of-way for two lanes in lieu of four	
Original Design	The current design calls for the purchase of between 200 to 250 feet of right-of-way (ROW) with the anticipation that the proposed two-lane roadway will be expanded to four lanes in the near future	
Alternative Proposed	Purchase only the ROW necessary to construct the current two-lane facility.	
	Advantages	**Disadvantages**
	• Reduces initial ROW costs • May not be currently needed	• Increases in future ROW cost • Could create future encroachments if four lanes materialized • May already be in the process of being purchased
Recommendation	This project has been developed to aid Troup County and the City of Lagrange in facilitating the new automotive plant that is coming to the area. This road will act as a catalyst to attract other manufacturers and automotive suppliers to build along the corridor. If the right of way for the four-lane project is not currently purchased and protected from development, the future four-lane South Lagrange Loop would be extremely difficult to implement. As predicted development takes place, the land values in the area will increase. We believe it is prudent and the fiduciary responsibility of the Department to purchase the necessary land at this time. **Road Design's decision to implement: No**	

<table>
<tr><th>Alt. No.</th><th colspan="2">Description</th></tr>
<tr><td>4</td><td colspan="2">Clear right-of-way for four lanes</td></tr>
<tr><td>Original Design</td><td colspan="2">The present design proposes to clear, grade, and drain a portion of the proposed four-lane ROW to accommodate only the two-lane facility.</td></tr>
<tr><td>Alternative Proposed</td><td colspan="2">Clear the entire proposed ROW to accommodate the anticipated future four-lane facility in lieu of just the current two-lane roadway.</td></tr>
<tr><td rowspan="2"></td><td>Advantages</td><td>Disadvantages</td></tr>
<tr><td>• Reduces future costs
• Acknowledges potential widening to accommodate four lanes
• Precludes future encroachment problems</td><td>• Increases initial cost
• Aesthetics - wooded land would be cleared negating natural beauty
• Erosion controls may be required if clearing overdone
• Incurs costs that may not be needed</td></tr>
<tr><td>Recommendation</td><td colspan="2">The FHWA has approved the Environmental Assessment of this project on the condition that the clearing should only be done for the two lanes to be built currently. In the During Construction Commitments of the Environmental Commitments/Requirements "Green Sheets" it is stated: "Units 4 & 292: The County will only clear enough land necessary to build the proposed two-lane roadway. All remaining right-of-way will remain undisturbed."

Road Design's decision to implement: No</td></tr>
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<table>
<tr><th>Alt. No.</th><th colspan="2">Description</th></tr>
<tr><td>5</td><td colspan="2">Locate a utility corridor to preclude future conflicts</td></tr>
<tr><td>Original Design</td><td colspan="2">The present design does not address the use of a utility corridor (utilidor).</td></tr>
<tr><td>Alternative Proposed</td><td colspan="2">Since it is expected the South Lagrange Loop will become a four-lane limited access facility, it would be prudent to provide a utilidor, either in the center of the proposed 44-foot median or on the outside shoulder, to carry all known utilities such as water, sewer, sanitary, power, communications, etc.</td></tr>
<tr><td rowspan="2"></td><td>Advantages</td><td>Disadvantages</td></tr>
<tr><td>• Avoids future cost of relocating utilities
• Precludes future conflicts
• Facilitates design and construction
• Common practice</td><td>• Some loss of flexibility for future expansion
• Could result in higher future costs if utilidor has to be paved over due to road expansion</td></tr>
<tr><td>Recommendation</td><td colspan="2">There are several issues that would arise with the implementation of an utilidor. Since the exception area (PI 0008292) does not include an utilidor and the utilities involved on both projects have already planned to make the necessary changes, an utilidor would be impractical. Additionally, due to possibly of heavy industry development within this corridor, forecasting the utility needs would be difficult.

Road Design's decision to implement: No</td></tr>
</table>

Alt. No.	Description	
6	In certain areas, build new two-lanes in order to keep existing lanes for traffic maintenance	
Original Design	The present design proposes to build the new two-lane road "over" the existing lanes in several areas. This situation complicates constructability.	
Alternative Proposed	The alternate would build the "other" two new lanes away from the existing roadway, in areas where the plans now propose to construct new two-lanes over the existing lanes.	
	Advantages	**Disadvantages**
	• Reduces in construction time • Facilitates construction • Improves safety during construction • Allows contractor additional lay-down area	• Increases initial cost • Requires the use of cross over • Skews the angle of the intersection with US 29ISR 14
Recommendation	There would be additional construction costs to facilitate constructability and maintenance of traffic. Due to the low volumes on much of the project area, the lost timesavings would not be significant. Because of the vertical alignment changes that would result from implementation, earthwork costs would be increase. The contractor will have ample work area because of the large right-of-way footprint provided. **Road Design's decision to implement: No**	

Alt. No.	Description	
7	Eliminate the third lane on South Lagrange Loop between Old Hutchinson Road and Orchard Hill Road	
Original Design	The original configuration has a 12-foot lane in the middle of the roadway that is striped-off.	
Alternative Proposed	Eliminate the striped-off lane and construct a narrower section.	
	Advantages	**Disadvantages**
	• Reduction in construction time • Facilitates construction • Reduces initial cost	• None apparent
Recommendation	MAAI wrote: In planning for future widening, it was deemed advantageous to design the extra pavement to aid in future staging and construction. Road Design's decision is to implement: Yes (MAAI said no). We will follow the MUTCD for signage requirements and AASHTO guidelines for lane drops here and use only the width of road necessary for the safe transition from two through lanes at Orchard Hill Road to one through lane south of Orchard Hill.	

Alt. No.	Description	
9	Reduce the width of Pegasus Parkway/CR 304 between Orchard Hill Road and Whitesville Road/SR 219	
Original Design	The original configuration has a 12-foot lane in the middle of the roadway that is striped-off.	
Alternative Proposed	Eliminate the striped-off lane and construct a narrower section.	
	Advantages	**Disadvantages**
	• Reduces construction time • Facilitates construction • Reduces initial cost	• None apparent
Recommendation	Here there are two through lanes in each direction. Providing some space between opposing traffic makes this section of the Loop safer. Secondly it would be more advantageous from a construction staging standpoint to incorporate the extra pavement into this project so that it will be available to work with in the design of the additional two lanes in the future. Additionally, as traffic increases and the left-turns become a more dominant movement at the intersection, the additional pavement can be re-striped to function as storage. **Road Design's decision to implement: No**	

<table>
<tr><th>Alt. No.</th><th colspan="2">Description</th></tr>
<tr><td>10</td><td colspan="2">Divide the project into two -either side of the "exception"</td></tr>
<tr><td>Original Design</td><td colspan="2">The present design calls for a continuous project to be bid by a single entity and continued without any interruptions within a specified period of time.</td></tr>
<tr><td>Alternative Proposed</td><td colspan="2">Divide the project into two separate construction projects. The first one would begin at the SR 109 and South Lagrange Loop intersection and continue to the west end of the "exception", a distance of about 15,320 feet. The second would commence at the east end of the "exception" and conclude at the intersection of Pegasus Parkway and Whitesville Road/SR 2 19.</td></tr>
<tr><td></td><td>Advantages</td><td>Disadvantages</td></tr>
<tr><td></td><td>• Funding could be handled in two different stages
• Smaller and mid-sized contractors could bid
• Each project could result in a shortened construction period
• May increase good neighbor relations with known industrial clients</td><td>• Increases GDOT's administration due to two contracts in lieu of one
• Costs could increase due to two stages mobilization/demobilizations
• Economy of scale may be compromised on the separate projects
• Could result in longer constriction durations</td></tr>
<tr><td>Recommendation</td><td colspan="2">By dividing this project into two separate projects, much inefficiency would result due to our place in the project timeline. Much of the Plan Development Process would need to be revisited in order to make this happen. For example, we would be forced to revise the concepts and hold additional field plan reviews and revise plans to incorporate this alternative. Project 0008292 was split out of the original project and mid-sized contractors did not bid on the project. The added cost of mobilization would mitigate any advantage in time savings.

Road Design's decision to implement: No</td></tr>
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Alt. No.	Description	
13	Reconfigure the intersection of US 29/SR 14 and Old West Point Road	
Original Design	The present design realigns the South Lagrange Loop with a "new" roadway section to achieve a 90° intersection at the US Route 29 (US 29)/State Route 14 (SR 14) and Old West Point Road intersection.	
Alternative Proposed	Use the existing Old West Point Road pavement and maintain the existing 61" skew at the US 29/SR 14 and the new South Lagrange Loop.	
	Advantages	**Disadvantages**
	• Reduces initial cost • Facilitates construction • Simplifies design and construction • Reduces right-of-way costs	• 61" skew angle requires a GDOT variance • Perceived loss of operational capability with a 61° skew
Recommendation	Although construction costs may be reduced slightly, the intersection angle of 61°creates an unsafe situation. Because of the expected truck volumes and that the project serves as a showpiece to attract further industrial development, safety is imperative. Coupled with the increase in accidents expected for a 61°skew is the loss of capacity at the intersection. **Road Design's decision to implement: No**	

Alt. No.	Description	
14	Minimize the dedicated lanes at the intersection of US 29/SR 14 and South Lagrange Loop.	
Original Design	The present design proposes separate left-turn and through lanes on all approaches at the intersection of US Route 29 (US 29)/State Route 14 (SR 14) and the new South Lagrange Loop.	
Alternative Proposed	Combine the proposed left-turn lanes and the through-lanes into one lane at the US 29/SR 14 and the new South Lagrange Loop intersection.	
	Advantages	**Disadvantages**
	• Reduces construction cost • Facilitates construction • Narrower intersection • Not needed	• Reduces traffic operations to some extent due to a single lane handling two movements
Recommendation	There is considerable traffic coming from west bound on the South LaGrange Loop turning left onto SR14/US 29 South (310 DHV). This volume is on the verge of requiring two dedicated left turn lanes. The other left turn movements at this intersection range from 175 to 60 DHV. At least two legs of this intersection clearly warrant the use of dedicated left turn lanes. Couple this with the geometry of the road and the fact that a high truck percentage is believed to be on this road within a few years there is little benefit to implementing this recommendation. **Road Design's decision to implement: No**	

Alt. No.	Description	
15	Eliminate the driveways from the acquired properties	
Original Design	The current design documents indicate that new driveways are proposed for four acquired properties. These properties are: (1) Mrs. Howard Sirns, (2) Ann Loyd Alverson and Maurice E. Alverson, (3) Troup County Board of Commissioners, and (4) E. H. Baker. These properties are on the north side of the South Lagrange Loop between US Route 29 / State Route 14 and Old West Point Road.	
Alternative Proposed	Eliminate the driveways, as the structures on the properties are to be demolished.	
	Advantages	**Disadvantages**
	• Reduces cost • Minimizes coordination work • Simplifies design and construction	• None apparent
Recommendation	Demolition of structures should be performed by the Right of Way office. Driveways should not be provided for demolished structures. **Road Design's decision is to implement: Yes**	

Alt. No.	Description	
17	Reduce the amount of improvements at the intersection of SR 109 and South Lagrange Loop.	
Original Design	The original design proposes separate left-turn only lanes from both westbound (WB) and eastbound (EB) traffic at the intersection of State Route 109 (SR 109) and the new South Lagrange Loop, even though the future EB left-turn lane will be striped-out under this project.	
Alternative Proposed	Eliminate the two left-turn lanes on both approaches on SR 109 at the South Lagrange Loop. The left-turn-only lane on South Lagrange Loop will remain, due to left-turn volumes.	
	Advantages	**Disadvantages**
	• Reduces construction cost • Facilitates construction • Narrower intersection • Not needed • Reduces right-of-way costs	• Combines through and left-turns in same lane • Perceived reduction in safety associated with turning movements
Recommendation	There is a projected volume of 135 DHV turning left from SR 109 onto the South LaGrange Loop. This amount of traffic warrants a dedicated left turn lane. Also a future road has been proposed to extend the South LaGrange Loop across SR 109. It would benefit the Department and the residents in LaGrange if the space for a left turn lane were placed on the opposite side. This way no additional widening would be needed once this road was constructed and it makes a smoother transition across the intersection. **Road Design's decision to implement: No**	

Alt. No.	Description	
18	Eliminate crown on typical section	
Original Design	The proposed roadway is crowned in the middle so that storm water flows to each side of the road.	
Alternative Proposed	Eliminate the crown and slope the road section toward the proposed median or to the outside of the roadway.	
	Advantages	**Disadvantages**
	• Could be less costly to install storm sewers • Easier to design, construction and maintain storm sewer • Common practice	• Roadway may look unconventional until another lane is constructed • Aesthetics • Potential drainage issues at super-elevated sections
Recommendation	There is no real quantifiable cost advantage to implementing this recommendation. The project exception area (PI 0008292) has the same crown on its typical section for the South Lagrange Loop. **Road Design's decision to implement: No**	

Alt. No.	Description	
19	Provide clearing, grading and drainage for four lanes	
Original Design	The present design proposes to clear, grade, and drain a portion of the proposed four-lane right-of-way to accommodate only the two-lane facility.	
Alternative Proposed	Clear, grade, and drain the proposed right-of-way to accommodate the anticipated future four-lane facility in lieu of just the current two-lane roadway.	
	Advantages	**Disadvantages**
	• Reduces future costs • Acknowledges potential widening to accommodate four lanes • Precludes future encroachment problems	• Increases initial cost • Aesthetics - wooded land would be cleared; therefore negating natural beauty • Erosion controls may be required if clearing/grading overdone • Incurs costs that may not be needed
Recommendation	The FHWA has approved the Environmental Assessment of this project on the condition that the clearing should only be done for the two lanes to be built currently. In the During Construction Commitments of the Environmental Commitments/Requirements "Green Sheets" it is stated: "Units 4 & 292: The County will only clear enough land necessary to build the proposed two-lane roadway. All remaining right-of-way will remain undisturbed." **Road Design's decision to implement: No**	

Alt. No.	Description	
20	Use a 24-foot median in lieu of a 44-foot median	
Original Design	The present design proposes a right-of-way width averaging 230 feet to accommodate a future four-lane facility.	
Alternative Proposed	Restrict the width of the proposed median to 24 feet instead of 44 feet and consequently reduce the right-of-way width by 20 feet. This is proposed between SR 190 and Orchard Hill Road.	
	Advantages	**Disadvantages**
	• Reduces right-of-way cost • Right-of-way may already have been purchased	• Restricts future expansion of the median for additional travel and turn lanes (however, could expand to the outside) • Not a preferred median width
Recommendation	A narrower median at the outset would not allow the flexibility that may be required as new large-scale businesses locate to the area. The 44-foot median proposed allows for future turn and through lanes that may be needed. In addition, much of the right-of-way for this project is currently under negotiation and some has actually been purchased at the time of this report. **Road Design's decision to implement: No**	

Alt. No.	Description	
24	Shorten the CSX Railroad bridge for two lanes only	
Original Design	The proposed design is a 20-foot wide railroad bridge with four spans at 70 feet each. The proposed new two-lane South LaGrange Loop is noted to go under Span No. 2, while the future additional two-lanes are designated to go under Span No. 3.	
Alternative Proposed	Construct a three span railroad bridge with each span at 70 feet and retain newly proposed two-lane South LaGrange Loop under Span No. 2.	
	Advantages	**Disadvantages**
	• Reduces initial cost • Facilitates construction • Simplifies design and construction • May not be needed	• Loss of amenity • Lost opportunity to construct a longer railroad bridge "today" • If future lanes are needed in the immediate future, costs would escalate
Recommendation	As designed the Department is allowing for the future four lane section. Given the railroad coordination, expected increase in developement (traffic) and the rise of bridge construction, the decision to build the bridge to accommodate the four lane section was already made by the Department. **Road Design's decision to implement: No**	

Alt. No.	Description	
25	Grade separate the new South Lagrange Loop and US Route 29/State Route 14 Intersection	
Original Design	The original configuration is an at-grade, signal-controlled intersection with South LaGrange Loop twisting to intersect US Route (US) 29/State Route (SR) 14 at 90°.	
Alternative Proposed	Realign South LaGrange Loop back to provide a straighter alignment commencing above the existing Old West Point Road and bridge over SR 29/SR 14.	
	Advantages	**Disadvantages**
	• Smoother South Lagrange Loop alignment • Improves through traffic efficiency on both roads • Improves safety of both roads • Locates alignment further away from residential area in the southwest quadrant of the intersection	• Increases initial costs • May increase construction time
Recommendation	Due to the amount of traffic and the distance between intersections (nearly a mile) a grade separated interchange is not warranted at this location. The benefit of improved operation does not justify the increase in costs associated with this alternative. I **Road Design's decision to implement: No**	

Alt. No.	Description	
27	Signalize the new South Lagrange Loop and Old West Point Road Intersection	
Original Design	The present design calls for a stop sign at the new South Lagrange Loop and Old West Point Road intersection. The current traffic count for left-turn movements from Old West Point Road onto South Lagrange Loop is 150 vehicles per hour (VPH) at peak times and is expected to rise to 350 VPH during peak times in the design year. Similarly, left-turn movements from South Lagrange Loop onto Old West Point Road at peak time is 110 VPH with an expected rise to 370 VPH in the design year at peak times.	
Alternative Proposed	Install a traffic signal to manage all turning movements at the new South Lagrange Loop and Old West Point Road intersection.	
	Advantages	**Disadvantages**
	• Better traffic control • Improves intersection safety • Reduces potential accidents • Common practice	• Increases initial cost • Increases O&M costs
Recommendation	Due to the amount of traffic and the longer distance of .85 miles to the next intersection a traffic signal is warranted here. In fact it would appear to be the only way to service such a volume. **Road Design's decision is to implement: Yes**	

Alt. No.	Description	
30	Use concrete versus asphaltic concrete pavement	
Original Design	The current project proposes to use asphaltic concrete pavement throughout the project.	
Alternative Proposed	Use plain concrete pavement throughout the project limits in lieu of asphaltic concrete.	
	Advantages	**Disadvantages**
	• Increases structural capacity of the road • Reduces O&M costs (see LCC sheet) • Increases the lifespan of the facility • Appropriate application for this material	• Greatly increases initial costs • Could increase construction time • Increases freeze/thaw issues
Recommendation	The anticipated heavy industrial truck traffic for this project could increase the maintenance costs of asphalt. The increase in initial cost of Portland cement could easily be offset if the softer asphaltic concrete material is exposed to a greater than anticipated amount of heavy truck traffic turning movements during maintenance and repaving. The project exception area (PI 0008292) proposes a typical section with concrete on top of an "inverted" base for quite a large section of the mainline. Also this project has already been selected as a test section for a two lift Portland cement concrete section. **Road Design's decision is to implement: Yes**	

Alt. No.	Description	
31	Provide a two-lane right-of-way and roadway from SR 109 to the beginning of the "exception" and a four-lane right-of-way and roadway from "exception" to Orchard Hill Road.	
Original Design	The current project proposes to construct a two-lane rural, limited access roadway with a four-lane right-of-way from State Route (SR) 109 to Orchard Hill Road. For Orchard Hill Road the project proposes a four-lane road with a four-lane right-of-way to the end of the project at Whitesville Road/SR 219.	
Alternative Proposed	Construct a two-lane roadway with a two-lane right-of-way from the beginning of the project at SR 109 to the beginning of the "exception" and then construct a four-lane road with a four-lane right-of-way from the end of the "exception" to Old Orchard Road. It is noted that Pegasus Parkway is already designed for a four-lane road to the end of the project at Whitesville Road/SR 219.	
	Advantages	**Disadvantages**
	• Capacity matches expected traffic volumes • Reduces right-of-way requirements • May reduce construction time	• Increases initial costs • More difficult to expand the two-lane section in the future
Recommendation	There is no specific point in the "exception" area that creates a significant addition/subtraction of traffic volumes, implementation of this alternative cannot be justified. Furthermore the potential for rapid growth is made possible by the construction of this project. Since this is likely to occur the four lanes of right of way will have been a well placed investment. Additionally much of the right-of-way involved has already been purchased or is currently under negotiation. **Road Design's decision to implement: No**	

Response to Analysis of Value Engineering Study Alternatives:

As discussed at the meeting held on November 14, 2007, Moreland Altobelli further studied the implementation of the following Alternatives: 7,9,14,17, and 27.

Alternate 7:
Eliminate the third lane on South Lagrange Loop between Old Hutchinson Road and Orchard Hill Road.

Further analysis of this alternate revealed that this alternative is not feasible. GDOT Construction Detail M-3 shows that the taper lengths must be a minimum of 180' and the turn lanes must have 525' of "bay" length for adequate deceleration. Once these dimensions are applied to both ends of the "third lane", there is less than 400 feet of striped area. Therefore, we do not recommend implementing this alternative.

Alternate 9:
Reduce width of Pegasus Parkway between Orchard Hill Road and Whitesville Road/SR 209.

As with Alternate 7, Construction Detail M-3 requires more taper and storage than what was shown on the VE Study Plans. Because the turn lane and taper length should be longer than appears currently, there is less striped off lane than previously estimated. Using a safe taper ratio of the width of taper multiplied by the posted speed limit would yield a required taper of 330'. We feel the distance to the intersection of Orchard Hill Road is too close to the proposed taper location to provide a good design. Therefore, we do not recommend implementing this alternative.

Alternate 27:
Signalize the new South Lagrange Loop and US 29/SR 14 Intersection.

The traffic in this are is expected to grow tremendously with increased industrial development. Therefore, we will implement this alternative.

Alternative 14 and 17

The two intersections: South LaGrange Loop at SR 109 and SR 14/US 29 were analyzed using the 2029 design year traffic volumes to determine if the lane configuration could be reduced at these intersections. The lane configuration proposed for these two intersections include left and right turn lanes on all four approaches. It was also assumed that in the year 2029 that SR 14/US 29 would be already widened to a 4-lane highway.

The results of the analysis indicates that if any of the right turn lanes are eliminated at the intersection of SR 109 then the intersection would operate at a failing level of service. However at the intersection of SR 14/US29, the southbound right turn lane on the South LaGrange Loop and the westbound right turn lane on SR 14/US 29 could be eliminated and the intersection would still operate at level of service D in the year 2029. It should be noted that if SR 14/US 29 is not widened to four lanes then the intersection would operate at level of service F. The HCS worksheets are attached.

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency: MA
Date: 11/16/07
Period: AM Peak Hour
Project ID: LaGrange Bypass - Build (without Vernon Rd. Bypass)
E/W St: S.R. 109/Roanoke Rd.

Inter.: SR109 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	0	1	0	0	0
LGConfig		T	R	L	T		L		R			
Volume		1135	275	220	225		65		380			
Lane Width		12.0	12.0	12.0	12.0		12.0		12.0			
RTOR Vol			0						0		*	

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	P			
	Thru		P				Thru				
	Right		P				Right	P			
	Peds						Peds				
WB	Left	P	P			SB	Left				
	Thru	P	P				Thru				
	Right						Right				
	Peds						Peds				
NB	Right		P			EB	Right	P			
SB	Right					WB	Right				
Green		10.0	66.0					10.0			
Yellow		4.0	4.0					4.0			
All Red		0.0	1.0					1.0			

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1230	1863	1.03	0.66	49.3	D	40.2	D
R	1282	1583	0.24	0.81	2.7	A		
Westbound								
L	380	1770	0.64	0.80	16.7	B		
T	1490	1863	0.17	0.80	2.6	A	9.6	A
Northbound								
L	177	1770	0.41	0.10	49.0	D		
							9.8	A
R	1282	1583	0.33	0.81	3.1	A		
Southbound								

Intersection Delay = 28.4 (sec/veh) Intersection LOS = C

Analyst:
Agency: MA
Date: 12/17/01
Period: PM Peak Hour
Project ID: LaGrange Bypass - Build (without Vernon Rd. Bypass)
E/W St: S.R. 109/Roanoke Rd.

Inter.: SR109 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	1	0	1	0	0	0
LGConfig		T	R	L	T		L		R			
Volume		320	220	340	660		345		400			
Lane Width		12.0	12.0	12.0	12.0		12.0		12.0			
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	P			
Thru		P			Thru				
Right		P			Right	P			
Peds					Peds				
WB Left	P	P			SB Left				
Thru	P	P			Thru				
Right					Right				
Peds					Peds				
NB Right		P			EB Right	P			
SB Right					WB Right				
Green	13.0	40.0				23.0			
Yellow	4.0	4.0				4.0			
All Red	0.0	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1573	3539	0.23	0.44	15.8	B	10.8	B
R	1196	1583	0.20	0.76	3.6	A		
Westbound								
L	682	1770	0.55	0.63	11.2	B		
T	2241	3539	0.33	0.63	8.0	A	9.1	A
Northbound								
L	452	1770	0.85	0.26	49.4	D		
							25.4	C
R	1196	1583	0.37	0.76	4.6	A		
Southbound								

Intersection Delay = 14.8 (sec/veh) Intersection LOS = B

Analyst:
Agency: MA
Date: 11/16/07
Period: AM Peak Hour
Project ID: No Right Turn on SR 109
E/W St: S.R. 109/Roanoke Rd.

Inter.: SR109 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen

N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	1	1	0	1	0	1	0	0	0
LGConfig		TR		L	T		L		R			
Volume		1135	275	220	225		65		380			
Lane Width		12.0		12.0	12.0		12.0		12.0			
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left	P			
Thru		P				Thru				
Right		P				Right	P			
Peds						Peds				
WB Left	P	P			SB	Left				
Thru	P	P				Thru				
Right						Right				
Peds						Peds				
NB Right		P			EB	Right				
SB Right					WB	Right				
Green	10.0	66.0					10.0			
Yellow	4.0	4.0					4.0			
All Red	0.0	1.0					1.0			

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	1197	1814	1.31	0.66	162.2	F	162.2	F
Westbound								
L	314	1770	0.78	0.80	35.4	D		
T	1490	1863	0.17	0.80	2.6	A	18.8	B
Northbound								
L	177	1770	0.41	0.10	49.0	D		
							9.8	A
R	1282	1583	0.33	0.81	3.1	A		
Southbound								

Intersection Delay = 105.0 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency: MA
Date: 11/16/07
Period: AM Peak Hour
Project ID: No Right Turn on Bypass
E/W St: S.R. 109/Roanoke Rd.

Inter.: SR109 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen

N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	0	0	0	0	0	0
LGConfig		T	R	L	T			LR				
Volume		1135	275	220	225		65		380			
Lane Width		12.0	12.0	12.0	12.0			12.0				
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	P			
Thru		P			Thru				
Right		P			Right	P			
Peds					Peds				
WB Left	P	P			SB Left				
Thru	P	P			Thru				
Right					Right				
Peds					Peds				
NB Right		P			EB Right	P			
SB Right					WB Right				
Green	10.0	46.0				30.0			
Yellow	4.0	4.0				4.0			
All Red	0.0	1.0				1.0			

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	857	1863	1.47	0.46	245.5	F	198.1	F
R	1282	1583	0.24	0.81	2.7	A		
Westbound								
L	252	1770	0.97	0.60	78.5	E		
T	1118	1863	0.22	0.60	9.7	A	43.7	D
Northbound								
LR	491	1636	1.01	0.30	77.1	E	77.1	E
Southbound								

Intersection Delay = 144.8 (sec/veh) Intersection LOS = F

HCS2000: Signalized Intersections Release 4.1d

Analyst: KMP
Agency: MA
Date: 11/19/07
Period: AM Peak Hour
Project ID: LaGrange Bypass
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	1	1	1	1	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	75	1065	300	140	570	45	115	510	205	65	620	30
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		P			NB Left	P	P		
Thru		P			Thru	P	P		
Right		P			Right	P	P		
Peds					Peds				
WB Left	P	P			SB Left		P		
Thru	P	P			Thru		P		
Right	P	P			Right		P		
Peds					Peds				
NB Right	P				EB Right	P			
SB Right					WB Right				
Green	6.0	34.0				5.0	37.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	0.0	1.0				0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	261	767	0.32	0.34	27.6	C		
T	1203	3539	0.98	0.34	55.0-	D	46.7	D
R	697	1583	0.48	0.44	22.2	C		
Westbound								
L	180	1770	0.87	0.44	62.8	E		
T	1557	3539	0.41	0.44	19.9	B	27.7	C
R	697	1583	0.07	0.44	16.4	B		
Northbound								
L	164	1770	0.78	0.46	53.0	D		
T	857	1863	0.66	0.46	25.0	C	25.5	C
R	902	1583	0.25	0.57	11.5	B		
Southbound								
L	220	595	0.33	0.37	26.5	C		
T	689	1963	1.00	0.37	65.8	E	60.3	E
R	586	1583	0.06	0.37	20.5	C		

Intersection Delay = 40.8 (sec/veh) Intersection LOS = D

Analyst: KMP
Agency: MA
Date: 11/20/07
Period: PM Peak Hour
Project ID: LaGrange Bypass
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	1	1	1	1	1
LGConfig	L	T	R	L	T	R	L	T	R	L	T	R
Volume	70	515	380	180	920	95	315	650	150	70	420	105
Lane Width	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left		P			NB	Left	P	P		
Thru		P				Thru	P	P		
Right		P				Right	P	P		
Peds						Peds				
WB Left	P	P			SB	Left		P		
Thru	P	P				Thru		P		
Right	P	P				Right		P		
Peds						Peds				
NB Right	P				EB	Right	P			
SB Right					WB	Right				
Green	12.0	25.0					15.0	30.0		
Yellow	4.0	4.0					4.0	4.0		
All Red	0.0	1.0					0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	109	436	0.72	0.25	67.3	E		
T	885	3539	0.65	0.25	37.2	D	34.3	C
R	712	1583	0.59	0.45	24.2	C		
Westbound								
L	325	1770	0.62	0.41	29.6	C		
T	1451	3539	0.70	0.41	27.4	C	27.0	C
R	649	1583	0.16	0.41	19.2	B		
Northbound								
L	353	1770	0.99	0.49	72.5	E		
T	913	1863	0.79	0.49	28.2	C	37.8	D
R	1045	1583	0.16	0.66	6.8	A		
Southbound								
L	145	482	0.54	0.30	42.8	D		
T	559	1863	0.84	0.30	46.5	D	42.7	D
R	475	1583	0.25	0.30	27.7	C		

Intersection Delay = 34.4 (sec/veh) Intersection LOS = C

Analyst: KMP
Agency: MA
Date: 11/19/07
Period: AM Peak Hour
Project ID: LaGrange Bypass- No WB right on SR 14
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	75	1065	300	140	570	45	115	510	205	65	620	30
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left		P			NB	Left	P	P		
Thru		P				Thru	P	P		
Right		P				Right	P	P		
Peds						Peds				
WB Left	P	P			SB	Left		P		
Thru	P	P				Thru		P		
Right	P	P				Right		P		
Peds						Peds				
NB Right	P				EB	Right	P			
SB Right					WB	Right				
Green	6.0	34.0					5.0	37.0		
Yellow	4.0	4.0					4.0	4.0		
All Red	0.0	1.0					0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	248	730	0.33	0.34	28.2	C		
T	1203	3539	0.98	0.34	55.0-	D	46.8	D
R	697	1583	0.48	0.44	22.2	C		
Westbound								
L	180	1770	0.87	0.44	62.8	E		
TR	1540	3500	0.44	0.44	20.4	C	28.3	C
Northbound								
L	164	1770	0.78	0.46	53.0	D		
T	857	1863	0.66	0.46	25.0	C	25.5	C
R	902	1583	0.25	0.57	11.5	B		
Southbound								
L	220	595	0.33	0.37	26.5	C		
T	689	1863	1.00	0.37	65.8	E	60.3	E
R	586	1583	0.06	0.37	20.5	C		

Intersection Delay = 40.9 (sec/veh) Intersection LOS = D

Analyst: KMP
Agency: MA
Date: 11/19/07
Period: PM Peak Hour
Project ID: LaGrange Bypass- No WB right on SR 14
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	1
LGConfig	L	T	R	L	TR		L	T	R	L	T	R
Volume	70	515	380	180	920	95	315	650	150	70	420	105
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left		P			NB	Left	P	P		
Thru		P				Thru	P	P		
Right		P				Right	P	P		
Peds						Peds				
WB Left	P	P			SB	Left		P		
Thru	P	P				Thru		P		
Right	P	P				Right		P		
Peds						Peds				
NB Right	P				EB	Right	P			
SB Right					WB	Right				
Green	6.0	34.0					5.0	37.0		
Yellow	4.0	4.0					4.0	4.0		
All Red	0.0	1.0					0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	101	296	0.77	0.34	72.2	E		
T	1203	3539	0.48	0.34	27.3	C	29.8	C
R	697	1583	0.61	0.44	25.3	C		
Westbound								
L	307	1770	0.65	0.44	36.1	D		
TR	1535	3489	0.73	0.44	26.3	C	27.8	C
Northbound								
L	264	1770	1.33	0.46	205.0	F		
T	857	1863	0.84	0.46	33.7	C	79.0	E
R	902	1583	0.19	0.57	10.8	B		
Southbound								
L	108	292	0.72	0.37	61.1	E		
T	689	1863	0.68	0.37	31.8	C	33.6	C
R	586	1583	0.20	0.37	22.2	C		

Intersection Delay = 43.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: KMP
Agency: MA
Date: 11/19/07
Period: AM Peak Hour
Project ID: LaGrange Bypass - No WB or SB right turn
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Volume	75	1065	300	140	570	45	115	510	205	65	620	30
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left		P			NB	Left	P	P		
Thru		P				Thru	P	P		
Right		P				Right	P	P		
Peds						Peds				
WB Left	P	P			SB	Left		P		
Thru	P	P				Thru		P		
Right	P	P				Right		P		
Peds						Peds				
NB Right	P				EB	Right	P			
SB Right					WB	Right				
Green	6.0	34.0					5.0	37.0		
Yellow	4.0	4.0					4.0	4.0		
All Red	0.0	1.0					0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	248	730	0.33	0.34	28.2	C		
T	1203	3539	0.98	0.34	55.0-	D	46.8	D
R	697	1583	0.48	0.44	22.2	C		
Westbound								
L	180	1770	0.87	0.44	62.8	E		
TR	1540	3500	0.44	0.44	20.4	C	28.3	C
Northbound								
L	164	1770	0.78	0.46	53.0	D		
T	857	1863	0.66	0.46	25.0	C	25.5	C
R	902	1583	0.25	0.57	11.5	B		
Southbound								
L	220	595	0.33	0.37	26.5	C		
TR	685	1850	1.05	0.37	81.0	F	76.0	E

Intersection Delay = 43.9 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: KMP
Agency: MA
Date: 11/20/07
Period: PM Peak Hour
Project ID: LaGrange Bypass - No WB or SB right turns
E/W St: S.R. 14/U.S. 29/West Point Rd.

Inter.: SR14 @ Bypass
Area Type: All other areas
Jurisd: LaGrange-Troup County
Year : 2029 Build + Local Trip Gen
N/S St: LaGrange Bypass

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Volume	70	515	380	180	920	95	315	650	150	70	420	105
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		P			NB Left	P	P		
Thru		P			Thru	P	P		
Right		P			Right	P	P		
Peds					Peds				
WB Left	P	P			SB Left		P		
Thru	P	P			Thru		P		
Right	P	P			Right		P		
Peds					Peds				
NB Right	P				EB Right	P			
SB Right					WB Right				
Green	12.0	25.0				15.0	30.0		
Yellow	4.0	4.0				4.0	4.0		
All Red	0.0	1.0				0.0	1.0		

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	80	319	0.98	0.25	131.1	F		
T	885	3539	0.65	0.25	37.2	D	38.9	D
R	712	1583	0.59	0.45	24.2	C		
Westbound								
L	325	1770	0.62	0.41	29.6	C		
TR	1430	3489	0.79	0.41	30.2	C	30.1	C
Northbound								
L	340	1770	1.03	0.49	85.8	F		
T	913	1863	0.79	0.49	28.2	C	41.6	D
R	1045	1583	0.16	0.66	6.8	A		
Southbound								
L	145	482	0.54	0.30	42.8	D		
TR	542	1807	1.08	0.30	96.2	F	89.9	F

Intersection Delay = 44.8 (sec/veh) Intersection LOS = D