

City Of Peculiar Poised For Growth

I-49 And Peculiar Way Interchange



Conveniently located 16 miles south of the Kansas City metro area, offering the quiet and relaxed atmosphere of a small-town environment, sits the city of Peculiar. Founded in 1868, Peculiar was incorporated in 1953 to become a fourth-class city that is governed by a mayor and board of aldermen. Bolstered by visionary leadership and a proactive operations and maintenance staff, the City recently completed a corridor study that included the planned, new interchange of Interstate 49 and Peculiar Way (formerly known as 211th Street). With easy access from I-49/U.S. Highway 71 and with an abundance of undeveloped land, this valuable city resource is a key to regional growth.

Summary

The city of Peculiar is located in rural Cass County. Prior to the construction of this project, the 5,000 residents accessed the interstate system and the metro area via one interchange. Even more, the town was divided by the barrier created by I-49. Over the last 10 years, Cass County's population has grown by more than 20 percent, while the City's population has increased nearly 80 percent.

The interchange project grew out of a cooperative effort between Cass County, the city of Peculiar and George Butler Associate's (GBA) initial 211th Street corridor study, funded

by Cass County. The study showed access to I-49 was the critical first step to improve the corridor. The team prepared an initial access justification report for the City and County to gain project support from MoDOT.

After the City gained public support to finance the new interchange, MoDOT entered into a 50/50 cost share agreement with the City.

MoDOT, the city of Peculiar and GBA roadway, bridge and traffic engineers moved the project from concept study

to final design. The interchange team designed more than a mile of new roadway with a storm sewer, two retaining walls, a bridge, traffic signals, street lighting and other associated traffic devices.

The new access to I-49 from Peculiar Way is a diverging diamond interchange (DDI). The DDI is a relatively recent innovation in the United States' transportation industry. The state of Missouri has become a leader and authority on the adoption of DDI's after constructing the first one in 2009. Since then, numerous DDI's are under design or have been completed across the state.

The design of the DDI at I-49 and Peculiar Way incorporates several lessons learned from predecessors. One example is that off-ramp movements are not signalized. This new approach to traffic operations at a DDI was implemented based on traffic simulation modeling results.

Early Steps

Early on in the project, six horizontal alignments were considered with varying degrees of skew with I-49. The analysis also considered options of Peculiar Way going under or over I-49. After a cost comparison was completed for each option, the preferred alignment and profile was selected.

Several interchange types were considered, including a standard diamond interchange, a diverging diamond interchange (DDI), a single-point urban interchange (SPUI), and roundabouts at the ramp terminals. The SPUI was eliminated based on significantly higher construction costs due to the interchange skew angle. The traffic analysis of each interchange type proved that the DDI was the most practical solution based on the number of lanes required to reach acceptable levels of service, minimize queuing and construction cost.

MoDOT and the city of Peculiar originally established an overall project budget close to \$15 million, including design services, utility relocations, right-of-way acquisitions, construction inspection services and construction.

Total Project Budgeted Cost:	\$11,100,000
Total Project Actual Cost:	\$9,234,713
Scheduled Date of Completion:	November 2016
Actual Date of Completion:	September 2016

Through team collaboration, cost savings allowed the overall project budget to reach a little more than \$13 million. The \$2 million in savings was largely a result of optimizing the design, minimizing right-of-way acquisitions, and obtaining competitive bids.

The driving factor of the project schedule was right-of-way acquisition. During this process, plans were modified numerous times to accommodate property owner requests. Several aspects of the project were requested by the City to be redesigned during construction, including an additional roadway improvement project adjacent to the interchange. The city of Peculiar also requested an additional roadway improvement project adjacent to the interchange project.

// This exciting transportation project will meet the anticipated regional growth for the Peculiar community. //

Social, Economic And Sustainable Development

County and city officials not only supported this project since inception, they created it. Their backing led to gaining public support and passing general obligation bonds to finance the project. Residents approved this additional tax burden because they understood the direct benefits the new interchange would generate for the community.

The additional access point to I-49 encourages economic and population growth for the city of Peculiar. It not only relieves Peculiar's only interchange to the south, but also provides opportunity for the City to expand to the north.

Undeveloped land surrounding the interchange is prime real estate for new development, and area economic development officials are heavily promoting the area to potential businesses.



municode
Connecting you and your citizens

Government Websites
Codification Services
Electronic Payments

800.262.2633 • info@municode.com • municode.com



(left) The new DDI at I-49 and Peculiar Way generated community pride and excitement in the transportation system. This enthusiasm was shared by numerous elected officials and government employees at the ribbon cutting ceremony. In addition, residents joined the festivities to show their support for the recently completed project. Raymore-Peculiar High School's marching band, the Panther Pride, highlighted the ceremony by parading down the new roadway and celebrating the new DDI.

(lower left) The City completed a corridor study that included the planned, new interchange of I-49 and Peculiar Way (formerly known as 211th Street). With easy access from Interstate I-49/U.S. Highway 71 and with an abundance of undeveloped land, this valuable City resource is a key to regional growth.



Conclusion

This exciting transportation project will meet the anticipated regional growth for the Peculiar community. The additional interchange relieves congestion on the local road network and addresses the high crash rate at the existing interchange. The connection of Peculiar Way to I-49 is a critical first step in opening this east-west corridor for development. The innovative DDI delivered a long-term practical solution within budget. 🍃

As the Kansas City metro area expands, this location becomes a targeted area for development. The impact to the Peculiar community will be an economic boost and create local jobs.

One of the biggest benefactors of the project is the Ray-Pec High School, located less than a mile from the new interchange. Prior to construction, access to the school was an indirect, lengthy route on local residential streets. With direct access to I-49, student and visitor traffic is removed from the local road network, improving safety and traffic operations.

The interchange also better connects the residents of Peculiar by offering an additional way across I-49.

Several aspects of this project promoted sustainable efforts. Lane widths were minimized to reduce concrete/hard surface area, ultimately reducing materials, run-off, and heat-island effect. A shared use path with signalized crossings was installed throughout the length of the project. To balance earthwork and reduce hauling, a wide swale with low maintenance, native grasses provide natural filtration before storm water enters the stream.

Carl Brooks is the City Engineer for the City of Peculiar. Mr. Brooks has more than 35 years of both private consulting and municipal experience. He is a member of ASCE and APWA. He is a registered engineer in Missouri.

Tawn Nugent is an engineer leading the GBA Highways Group with 20 years of experience. She is driven by the opportunity to solve complex problems. Her projects span state and local roadway improvements, including several innovative interchanges, compressed project schedules, complicated utility coordination and stakeholder involvement, all while providing responsive service.