



Expert transportation analysis helps municipality prepare for the future

OVERVIEW

In recent years, the University Boulevard Corridor in Moon Township, Allegheny County, has experienced a resurgence of commercial development, thanks in large part to its location near Pittsburgh International Airport and the expansion of nearby Robert Morris University. While the new businesses have helped fuel the local economy, they have also brought added congestion and long-term safety concerns to the community. Recognizing that sustainable development depends on a long-term strategy to address these issues, the Moon Township Authority (MTA) retained the transportation engineering experts at L.R. Kimball to develop a comprehensive feasibility study examining their existing transportation infrastructure and future options. L.R. Kimball provided a thorough evaluation of transportation conditions and recommendations to improve traffic patterns that would foster additional economic growth.

However, roadway improvements failed to keep pace with business and RMU expansion. As a result, the region, including the last non-limited access section of 376 Business Loop (formerly Business Route 60), now faces safety issues stemming from heavy congestion, restricted pedestrian access and inadequate connector roadways.

It was essential that the feasibility study fully address these issues while taking into consideration the divergent views of business owners, university administrators, students, international airport representatives, local and state government agencies, and area residents.

Once this was achieved, Moon Township could carry out its strategic plan, anchored by improved traffic safety conditions and coordinated economic development along University Boulevard.

Project Overview

CLIENT:

Moon Transportation Authority

GOAL:

Identify and analyze transportation alternatives to reduce congestion and delay, upgrade existing facilities and strengthen business development opportunities along the growing University Boulevard

L.R. KIMBALL SERVICES:

- Traffic engineering
- Transportation planning
- Highway engineering
- Feasibility study

THE CHALLENGES

For years, University Boulevard, formerly known as Beers School Road/Narrows Run Road, was a heavily traveled corridor for Pittsburgh International Airport. Today, it serves the region's corporate community and the growing student body at nearby Robert Morris University (RMU).

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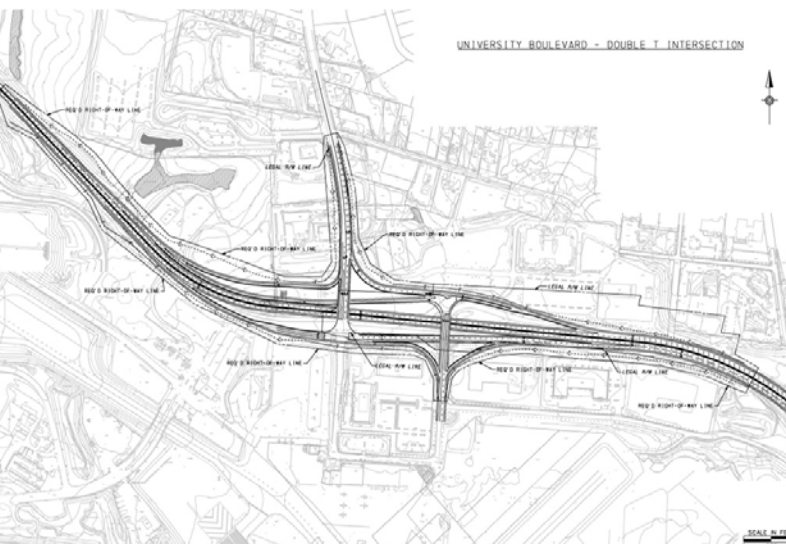
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THE SOLUTION

As part of its outcomes-based feasibility study, L.R. Kimball's experienced team of transportation engineers, planners and designers closely examined several key intersections and corridor locations, including:

- The heavily-traveled intersection of 376 Business Loop and University Boulevard
- Signalized intersections of 376 Business Loop/Airside Drive and 376 Business Loop/Hangar Road
- Four additional intersections on University Boulevard
- Network of connector roadways paralleling University Boulevard

Considering the Alternatives

Using well-developed criteria that evaluated issues ranging from traffic capacity and preliminary construction costs to right-of-way requirements and adherence to Federal Aviation Authority regulations, the team identified several possible alternatives to existing University Boulevard limitations. These included:

- No Build Alternative, where conditions remained unchanged
- Intersection improvements, including traffic signal retiming, additional turning lanes and pavement widening
- Fully functioning interchange via a Single Point Urban Interchange (SPUI) or a Tight Diamond Interchange

Unconventional Designs

As advocates of Smart Transportation guidelines, which encourage the development of flexible, creative and efficient design choices, the team also examined several unconventional intersection and interchange solutions, including:

- Roundabout
- Single quadrant intersection
- Dual roundabout interchange
- Median u-turn intersection
- Continuous flow intersection

These designs zeroed in on project-specific transportation issues, such as unique traffic patterns, geometric, right of way and land usage. In contrast to a more global approach, this laser focus was designed to leverage existing infrastructure, reduce the likelihood of do-overs, shorten the project timeline and save the client money.

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After exhaustive research, the team, together with MTA and other project partners, determined that unconventional designs would not meet the project need of eliminating the traffic signals and last remaining at grade intersection on 376 Business Loop. Contributing factors included traffic analyses that projected unacceptable levels of service in future years, limited congestion relief, and large right of way acquisitions that would be required by grade separations, ramps and additional lanes.

Making the Best Choice

To generate short-term progress, the team recommended optimized traffic signal timings along the Business Route 60 Corridor to immediately reduce traffic and improve overall safety. Looking ahead and with the MTA's long-term goals in mind, they also recommended the design and construction of a SPUI to best serve the region in the future. While in-depth analysis indicated that both a SPUI and Tight Diamond Interchange could absorb increased traffic, decrease congestion and reduce accidents, the cost and property impact from SPUI construction was significantly less, making it a more viable option.

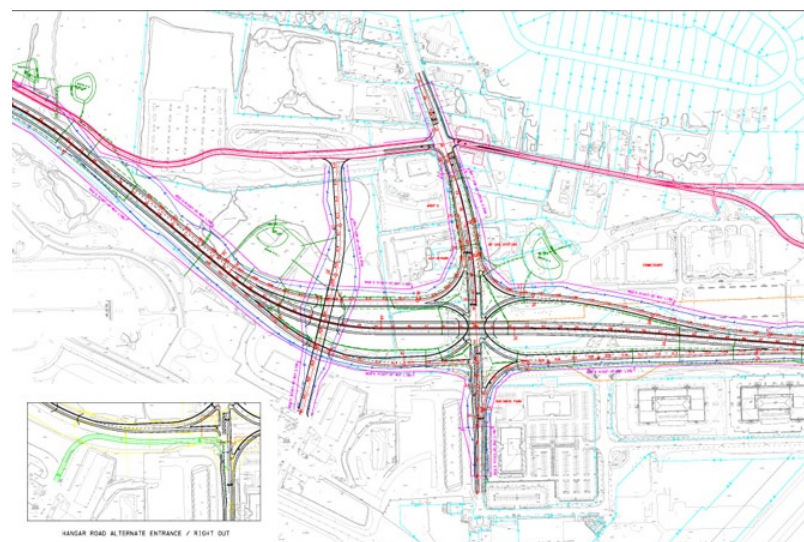
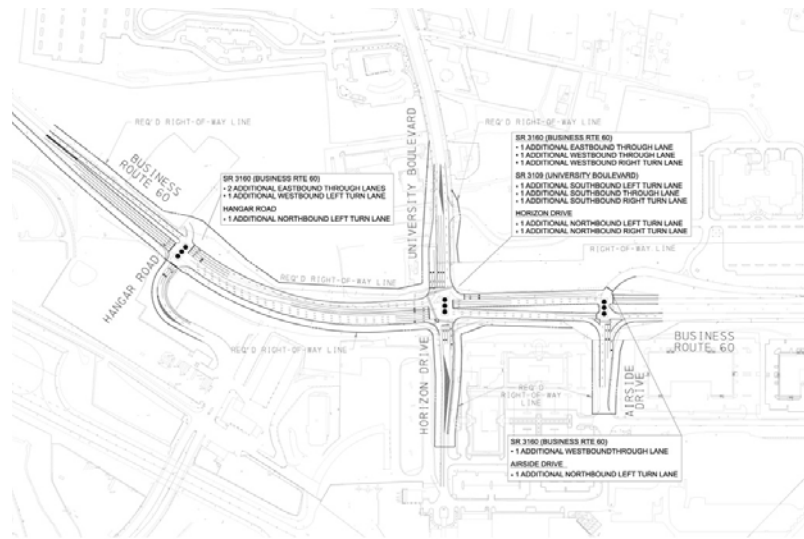
THE RESULTS

L.R. Kimball took a collaborative approach to the study and actively sought the perspectives of area municipalities, local and state agencies and authorities, business and community groups, and area residents.

As a result, the plan was endorsed and adopted with minor revisions by key constituents. These included Moon Township, Moon Township Authority, PennDOT District 11-0, Allegheny County Airport Authority, Allegheny County Department of Economic Development, US Army Reserve, Southwestern Pennsylvania Commission, and local residents and business leaders.

In addition to short- and long-term recommendations to mitigate congestion and safety concerns, the plan also included detailed information and analysis pertaining to:

- Pavement conditions
- All Appropriate Inquiry (AAI) Phase I Environmental Site Assessment (ESA)
- Environmental field reconnaissance, including wetlands
- Traffic engineering data and analysis
- Levels of Service (LOS) Mitigation



- Accident rates and overall traffic safety
- Utility relocations
- Right-of-way acquisitions
- Erosion and sedimentation control
- Storm water management
- Access roadway and adjacent intersection improvements
- Coordination with the Pittsburgh International Airport including the runway protection zones

The feasibility study also included a comprehensive cost estimate for the SPUI project, including roadway and bridge construction, right-of-way acquisition, utility relocations, highway lighting and airport approach lighting, environmental mitigations and other associated costs. Detailed project information is available at www.lrkimball.com/mta.

In addition, the project included recommendations and design schematics for:

- Reconstruction of Port Vue Drive and Hangar Road
- Construction of Port Authority Drive
- Relocation of the existing Park-n-Ride Lot

Construction to accommodate future developments including:

- Proposed US Army Commissary and Post Exchange
- Other new retail developments

Project implementation is scheduled to move forward as soon as adequate funding is secured.

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