Roundabouts Stand the Test of Time
Featuring the Lummi Nation

Although the shortest route between two points is a straight line, it may not be the safest. That’s a message that TTAP safety expert Todd Morrison likes to convey about roundabouts.

Increasingly, tribes are considering them to reduce the frequency and severity of intersection crashes and protect pedestrians. “According to FHWA, roundabouts slow vehicles to speeds between 15 and 25 miles per hour and can reduce the number of severe crashes by 78 to 82 percent,” Morrison notes.

Lower speed is not the only factor that saves lives and reduces injury. In a roundabout, traffic flows in a counter-clockwise direction around a center island. Compared to conventional intersections, this system dramatically reduces potential conflict points, including dangerous left-hand turns. Vehicle conflict points drop from 32 to eight, and pedestrian conflict points from 24 to eight.

“The bottom line is that a roundabout is much safer than a traditional intersection,” Morrison says. “It is also comparable in price to a signalized intersection and less expensive to maintain.”

A Successful Roundabout Project

These benefits played a large role in the Lummi Nation’s decision to install a series of roundabouts on Haxton Way, the principal north-south corridor connecting the Lummi Island Ferry terminal to roads leading to I-5 and Bellingham, Washington. Haxton Way runs right through the Lummi Reservation.

“We did a road safety audit and identified the intersection of Haxton and Kwina Road as one that posed a problem,” says Kirk Vinish, Planning Director for the Lummi Nation. “It had been the scene of a number of collisions.” In concert with Whatcom County, the owner of the road, and various stakeholders, the tribe constructed a roundabout as part of a larger safety program that included rumble strips and a two-mile-long pedestrian pathway.

Cost was one factor in the decision to build a roundabout rather than a signalized intersection. The other was the desire to reduce speeds on this stretch of roadway without interrupting traffic flow. As Vinish observes, “Even when you change the speed zone, there is no guarantee that drivers with a green light are going to slow down.”

For Vinish, the roundabout also provided another significant advantage. Landscaping of the center island gave the tribe an opportunity to make its presence known and to alert drivers that they have entered a distinct community that warrants their respect. They erected two story-poles on the center island as well as a sign in the Lummi language and in English welcoming visitors.

Because roundabouts are still relatively rare in the United States, public acceptance was initially slow in coming, but six years after the first Haxton Way roundabout was completed, drivers don’t give it a second thought, Vinish says, and it has virtually eliminated accidents.

Vinish attributes the success of the project to close cooperation among the jurisdictions and funders. In particular, he expressed special appreciation for Joseph Rutan, County Engineer and Assistant Director of the Whatcom County Public Works Department. “Joe’s dogged determination to create a safer environment was critical to the success of the project,” Vinish said.

Encouraged by the success of the Haxton Way-Kwina Road roundabout, the tribe built a smaller, traffic-calming roundabout closer to the ferry terminal and is considering other roundabouts on Kwina Way near the tribe’s administrative offices and other facilities.

Haxton Way and Kwina Road Roundabout Lummi Reservation

The oval layout with hardscaped center island creates a low-speed environment with minimal stopping and smooth entries and exits.

Photo Credit: Reid Middleton
Mapping Everything with GPS
Featuring the Muscogee (Creek) Nation

Forty years ago, when the first global positioning system (GPS) satellite was launched, the idea that you could pinpoint an object anywhere on Earth was considered the stuff of science fiction. Today, most people don’t give it a second thought. There’s a GPS receiver in our smartphones locating our destinations, telling us where we took our pictures, and even helping track our runs.

It takes great complexity to deliver that level of convenience. The U.S. government maintains a network of 31 GPS satellites around the globe, and other countries have their own systems. It takes precise timing to locate objects in space. Each GPS satellite has its own ultra-accurate atomic clock that is synced regularly with timing devices at the U.S. Naval Observatory. When your phone locks onto a group of satellites, the difference in milliseconds it takes for the signals to reach your receiver enables it to calculate your location.

Not All GPS Receivers are Created Equal

For most transportation applications, Burton says that mapping grade GPS is the right tool for the job. “The margin of error in consumer grade receivers is just too high, while survey grade equipment may not repay the investment,” Burton says. “If you can see the object — a hydrant or a culvert — mapping grade accuracy is sufficient.”

Getting the Most Out of Your Receiver

For tribes looking to invest in a GPS receiver, Burton’s advice is straightforward: understand what you want to use it for before you make your purchase. For instance, the Muscogee (Creek) Nation construction department has a survey-grade device while its Geospatial Department, responsible for providing location services for other groups in tribal government, uses a mapping grade device. “We are very interdepartmental here,” says Kathryn Sunny, GIS Analyst and Brownfields Coordinator. “We use our mapping grade GPS for a variety of applications, including locating underground utilities and storage tanks, cultural and historic sites, and houses and other facilities that lack a street address.” High on her department’s agenda: using their GPS to map the tribe’s road system.

For transportation applications, making a choice includes not only choosing the appropriate GPS grade but also a device that allows you to modify its database to include the roadway information you are tracking. In addition, Burton recommends that tribes purchase GPS receivers capable of accommodating the new horizontal and vertical GPS reference system that the National Geodetic Survey plans to introduce in 2022.

Sunny emphasizes that when a tribe has a mapping grade or better GPS receiver, the possibilities for using it seem endless. “If you have the opportunity to purchase a GPS device, do it in a heartbeat,” she recommends. “It will definitely not sit on the shelf!”

TTAP Technical Assistance: A Customized Resource to Build the Skills of Your Transportation Workforce

The TTAP team of subject matter experts (SMEs) is a wonderful tribal resource, providing customized support to help build the technical knowledge and capabilities of tribal workforces. Serving as technical mentors, SMEs help with specific tribal questions. They provide guidance and resources for transportation workers to expand their skills and increase their capabilities to resolve future issues in-house.

Some technical assistance requests arise during classroom training when class materials prompt students to think actively about problems in their communities that can be resolved with guidance from an expert mentor. Technical assistance is also generated through direct outreach, incoming inquiries and post-class follow-up.

Contact 833-484-9944 or info.ttap@virginia.edu to consult with a TTAP expert.
Road Construction Contracts - Get it in Writing

Making a road construction contract as airtight as possible is an exercise in pessimism. Tribal transportation departments have to assume that what can go wrong will go wrong—and write their road contracts to imagine every possible contingency. “In the majority of cases, contractors will do the job properly and promptly, and in these instances a contract serves the useful purpose of clarifying expectations and keeping the process on track,” says Diann Wilson, one of TTAP’s planning and procurement experts. “But when things go wrong, a good contract can protect tribes from liability and give them the basis to have shoddy work corrected.”

Wilson has created a road construction contract template that tribes can use as a guideline for creating contracts of their own. It has six major sections:

1. **Scope of Work**: This section lays out the nature of the contract with an explicit description of the work to be done and the standards to be followed. Tribes may require contractors to purchase errors and omissions insurance to cover missteps. Among other provisions, the scope of work should specify the contractor’s responsibilities, including supervision of the job site and the work of subcontractors, and ensure that tribal representatives have access to work in progress.

2. **Special Conditions**: One of the main themes of this section is scheduling. Wilson notes that tribes should specify an end date that includes final cleanup of the premises as well as liquidated damages, or penalties, for each calendar day the project goes past its deadline. This is also the section to specify a tribal preference in hiring and the actions contractors must take if they encounter items of cultural significance.

3. **Contract Sum**: Tribes should specify the amount of total payment and note that they are subject to adjustments specified in the payments section.

4. **Payments**: Payments are a tribe’s ultimate form of leverage. In this section tribes should lay out the conditions that must be met for payments to be made, the process of creating change orders, and scheduling of a final joint inspection.

5. **Warranty and Corrections**: This section of the contract contains the guarantee that the contractor is expected to provide, both on the quality of the work and its durability. The contractor should be required to make repairs occurring within a specific time after project completion that are caused by defective materials or processes.

6. **Other Conditions and Provisions**: This section has a series of provisions that pertain to the contract as a legal document. This might include restrictions on assigning it to a third party and conditions that must be met, on the part of the contractor and the tribe, to terminate it.

It is always important that tribal attorneys consult with experienced transportation experts from your tribe and, as necessary, external authorities. Contact Diann for a contract template. Bear in mind that the template is not a legal document and should be used for guidance only.

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Managing Relationships for Project Success

For many tribal transportation professionals, intersecting jurisdictions are just a fact of life. A given road may fall under state, county, and tribal ownership at various points along its length and maintaining it is a joint responsibility. “As with so many issues in tribal transportation,” says Diann Wilson, “the success of an individual project often comes down to the quality of long-term relationships.”

When money is at issue, the stakes are always higher. A case in point is when a tribe, using TTP funding, pays the local county to conduct work on a tribal road — and the tribe is not happy with the outcome. The result can be finger pointing, acrimony, and even lawsuits. “Every job is unique, and the fact that a partner jurisdiction performed previous work satisfactorily is no guarantee that missteps and misunderstandings will not happen,” Wilson says.

**Start Talking**

The most successful cross-jurisdictional transportation projects take place in the context of relationships. “Ideally, meetings are an occasion to build trust and understanding,” Wilson says, “but they are also opportunities to gain an appreciation of the challenges you might encounter in working together.”

**Write it Down**

No matter what the relationship, it is always a good idea to formalize expectations. In its 2019 Program Delivery Guide, the Office of Federal Lands Highway (FLH) makes a strong case that tribes should use a request for services and a project agreement when contracting out to an agency or government (examples of both documents can be found at [https://fhwafa.dot.gov/programs/ttp/guide/documents/full-guide.pdf](https://fhwafa.dot.gov/programs/ttp/guide/documents/full-guide.pdf)).

The FLH recommends that tribes prepare the first draft of the project agreement to ensure that its perspectives on its partner’s roles and responsibilities are the starting point for all discussions. It should be drafted before any activities begin, and should be circulated to partner agencies for review and comment.

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Diann Wilson is one of TTAP's Planning and Procurement experts. Contact Diann at diann.ttap@virginia.edu for assistance with planning and procurement questions.
TTAP Online Learning: A Free Resource to Extend Your Transportation Knowledge

TTAP online learning modules are a terrific resource to complement or extend classroom learning. Check out our 2-hour on-demand learning modules.

Find out more about online learning and register at ttap-center.org/online-training-schedule/.

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Overview

The Federal Highway Administration (FHWA) Office of Innovative Program Delivery’s Center for Local Aid Support launched the Tribal Technical Assistance Program (TTAP) Center 2-year pilot project in 2018 as a transportation resource for tribal communities across the country.

The TTAP Center provides comprehensive transportation training, both in the classroom and online, as well as technical assistance to tribal communities. These activities help to build skills and expertise to ensure the safety and performance of tribal roads and the continuous professional development of tribal transportation workforces.