Problem
Since it is not always easy to get to Corvallis other than by car, a comprehensive transportation plan needs to link Corvallis residences with neighboring towns, airports, rail service, plus venues at OSU, in our downtown, and to outdoor activities. The goal is to design transportation connectivity that outcompetes the car by being safer, faster, more efficient, and enjoyable. Better connectivity would help address problems such as congestion, wasteful use of resources, air and water pollution, climate change, and provide new community development opportunities for the future. One promising area is with autonomous vehicles (AVs): Corvallis and OSU could collaborate on experiments with one of the many companies designing AV systems.

Experiments
The OSU campus or downtown Corvallis could provide places to experiment with personal rapid transit. PRTs run on fixed routes and deliver passengers to specific stops. PRT systems might fit an experimental shuttle-type route that moves people to and from car-free or car-congested areas in downtown or at OSU (see https://www.youtube.com/watch?v=7UMvj2ZYnU8).

The OSU campus provides a unique opportunity to experiment with autonomous vehicle programming in an environment that includes pedestrians and cyclists, while also moving people from parking centers to campus locations. For a start, a robotic bus, like the Robosoft, could run a fixed route from 35th and Western, to 26th and Western, to 26th, and then to Monroe and back. Another option could be a route from the Corvallis Transit Center to Jefferson, then west on Jefferson to the 35th Street and return. A downtown Corvallis route might be south on 2nd Street starting at 2nd and Tyler, going west on Washington to 5th Street, and then north back to Tyler. These routes could serve during periods when there are maximum concentrations of people wanting access to these areas.

Equipment: The French company Robosoft has a "cybernetic transport system." The robuRIDE carries 30 passengers and reaches 24 kilometers per hour, driving autonomously using differential GPS and onboard sensors. In automatic mode, it can follow a pre-recorded path. To drive it manually, you use a joystick. A safety system relies on a laser scanner to avoid collisions. If a person or object is in the line of the vehicle, it detects the object and decelerates, stopping well away from the object. Even if this system fails, a soft foam bumper stops the vehicle if it hits something or someone.

Parry People Movers would also fit our needs. The PPM80 holds 41 passengers. PPM vehicles use flywheel energy storage giving regenerative braking and high-energy efficiency. Options available include variable passenger capacity, passenger access height, track gauge, external appearance, and power source. For examples and
Autonomous Carbus System: Looking further into the future, a system of autonomous carbus that provide safe, frequent, local, rider-directed travel could ease local traffic problems. Carbus seats 4-6 passengers, picks up riders, and takes them to their desired destination anytime day or night. Carbus are autonomous vehicles that run on city streets with traffic. Carbus are called by a potential rider or riders. Riders are picked up at their start location—a home, doctor’s office, theater, restaurant, school, or any addressable location. If other riders call for or from the same location and time, the Carbus picks up everyone. Carbus have no regular routes. Their movements are directed by rider needs and programmed for maximum rider satisfaction and energy efficiency using computer algorithms.

The Carbus system would be designed to move between larger people movers like PRTs, busses, and trains, connecting them to local neighborhoods. The objective is to create a competitive transportation system that would reduce the need for local car travel. Car travel is still allowed, but the Carbus system would be designed to be user friendly, safe, efficient, responsive, and fun to use. The system would always allow for human contact to meet Carbus rider needs.

Recommendations
A first step is to develop an overall system plan, starting small and envisioning what the future system might look like. Second is a PRT experiment. Next allow autonomous vehicles that meet safety requirements of lower accident rates than those of vehicles with drivers. A robotic system is programmed to meet rider needs as autonomous vehicle operation is developed. OSU, Corvallis, and the Mid-Valley have an opportunity to address some of our emerging car-gridlock and parking problems by thinking ahead and experimenting with new technologies.

Further Reading
Ideas that others are considering include: (The Economist, Technology Quarterly, “Smartphones on wheels,” 9 September 2014:16-18). Carlos Ghosn, Renault, Nissan, CEO predicts, “I think you’re going to have a lot of autonomous cars by the year 2020” (Bloomberg Business November 26, 2014), Uber’s boss says, “When there’s no other dude in the car’ the cost of using Uber becomes so cheap that there is no need to own a vehicle” (The Economist 7 February 2015:8). Cisco plans to build an Internet for “... smarter cars and roads equipped with sensors ... to keep traffic moving. It’s a greener, safer, easier future” (The Economist, February 14, 2014:57). Learn more about the Ultra Personal Rapid Transit (PRT) on-demand system urban environments at http://www.ultraglobalprt.com/ultra-global-taiwanese-partners-carry-landmark-study-personal-rapid-transit-prt/.