Pullman, Washington: Healthy Community Design Recommendations

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Bike audit, Stadium Way.
Recommendations Supporting Healthy Community Design

On April 16-18, 2019 the Washington State University, Pullman Chamber of Commerce, and other partners hosted a series of healthy community design workshops and presentations facilitated by Mark Fenton. These included the following on April 17: a bicycle audit led by University Recreation (UREC), and a presentation on active design to recreation and exercise science staff and faculty; lunch with Environmental Sustainability Alliance (ESA) student leaders; a seminar on sustainable design and a walk audit down Grimes Way with the Center for Environmental Research, Education, and Outreach (CERO); and a Town and Gown presentation on principles of design for economic, environmental, and public health. Activities continued on April 18 with an open employee presentation on building exercise into routine active transportation, with a discussion of policy and design supports; a walk audit from the depot building in downtown Pullman that explored the Main and Paradise Streets couplet, as well as a portion of College Hill that included Colorado Street; and a presentation to students on their critical role in supporting healthy design, sponsored by the ASWSU Environmental Sustainability Alliance (ESA).

During the presentations and discussions, Mark reiterated an overview of the key research into what creates a more walkable, bicycle-, and transit-friendly community, illustrating these principles with Pullman and WSU examples whenever possible. This included exploring the growing evidence that these factors not only support public health through increasing the amount of active transportation—walking, bicycling, and transit use—but that they also support economic vibrancy, environmental sustainability, and overall quality of life. Based on the evidence, four key characteristics of such a thriving community are as follows:

**A. Mixed land use patterns:** Compact development with different land uses and activities intermingled and close together, allowing for varied types of destinations within walking, cycling, and transit distance, while preserving open land and agricultural space.

**B. Active transportation facilities:** A comprehensive and connected network of pedestrian, bicycle, and transit facilities, such as sidewalks, bicycle lanes, and non-motorized pathways, as well as frequent, affordable, quality transit service appropriate to the community scale, from dial-a-ride to scheduled buses.

**C. Functional site designs:** Destinations and routes are designed to reward, not punish, those who arrive on foot, by bike and transit, such as buildings at the sidewalk, with parking on-street or behind, and elements such as street trees and landscaping; street furnishings such as benches, shade structures, planters, and awnings; human scale lighting and way-finding signs; safe and appealing transit stops with cover, benches and schedule information; and quality, plentiful bicycle parking.
D. Safety and access for people of all ages, incomes, physical abilities and disabilities, including quality street crossings (e.g. highly visible markings, countdown timers and auditory pedestrian signals), full ADA-compliant design, and appropriately applied state of the art traffic calming such as curb extensions, chicanes, median islands, roundabouts, and lane narrowing and road diets.

Recommendations and priorities

WSU is making great progress in supporting active transportation, and Pullman overall appears to recognize the importance of improving the walk-, bike-, and transit-friendliness of the community as an explicit economic development priority. But there are still many areas in which simple design and policy changes can positively impact the health and vitality of the community. The following is a summary of particular areas of focus that came out of our discussions and work sessions which should be priorities moving forward. At the end of this memo are rudimentary maps, with a sampling of the locations identified in these recommendations.

1. Pullman and WSU should adopt and implement Complete Streets policies.

A Complete Streets policy states that every time a roadway is touched—for construction, maintenance, or just routine paving and painting—consideration should be given to accommodating all users: pedestrians, bicyclists, transit riders, and drivers of all ages, incomes, abilities and disabilities. The accommodation and design should be based not just on the volume and intended speed of the traffic, but also transit use, adjoining land uses, particular safety concerns, and potential best-case pedestrian and bicycle traffic. Note that the Washington Department of Transportation has a Complete Streets policy, and looks favorably on funding applications that adhere to Complete Streets principles. The following are proposed steps for the community to pursue.

- Pullman City Council should pass a resolution adopting Complete Streets (CS) and directing the city staff to accommodate all users of all ages and abilities, using all travel modes, on all roadways, all of the time. It does not mean put a bike lane or sharrow everywhere; it means consider the best treatment for each user on every roadway.

- WSU should also formally adopt a similar Complete Streets policy. Model language for such policies is available from the national Complete Streets coalition (www.completestreets.org), and from the Washington State Department of Transportation.
• Both policies should specifically require routine accommodation – the inclusion of CS design elements during other work, such as when roads are torn up for utility work, or when private entities come in for development and construction permits and site plan review.

• Both Pullman and the University should adopt four documents as design guidance for their engineering and infrastructure staff and consultants. These have detailed design treatments, images, and practical examples for a broad range of conditions, based on existing best practices:

  • The National Association of City Transportation Officials *Urban Street, Urban Bikeway, and Transit Street Design Guides*.

  • The Federal Highway Administration’s *Small Town and Rural Multi-Modal Networks* guide (FHWA, 2017).

2. Create and upgrade critical dedicated bicycle facilities on the WSU campus.

The WSU Bicycle and Pedestrian Plan identifies three major steps in completing the bicycle network: Repairing and improving existing infrastructure; better facilities connecting bicycles to campus; and comprehensive bicycle circulation on campus. It does an excellent job of identifying priority projects. During the bicycle audit two specific priorities were identified which are not only central to a comprehensive network, but which will specifically support the Cougar bike share system. They are also in high profile locations, and will illustrate the research that suggests there are many people—as much as 60% of the population—interested in bicycling more, but concerned about having to ride on shared facilities with cars. These riders are more likely to ride on protected or separated bike facilities.

2a. Create *bicycle/bus only* lanes on Stadium Way.

This is a central spine onto and through campus, and it should be a truly multimodal corridor for all users. When bikes ride in the right lane marked with sharrows, and especially if they are slower riders or going uphill, vehicles will try to go around these cyclists, causing delays and possible conflicts as cars shift lanes. The sidewalks are often too narrow for pedestrians and bikes to share. And there are myriad mid-block crosswalks where pedestrians face a “multiple threat;” this means even if a vehicle in the first lane yields, the pedestrian may still be struck by a car in the second lane. Defining the outer lane as only available to bicycles and high occupancy vehicles (HOV) such as buses and team vans helps alleviate all of these issues. These are recommended steps:
• **Begin with a low-cost demonstration.** During summer when traffic is lighter turn the right hand lane in each direction into a Bike/HOV lane from E. Main Street to N. Fairway Road, and collect data on how it works for cars, transit, bikes, and pedestrians. Launch an informational and social media campaign, and mark the right lane for “bicycles/bus only” with diamonds and bike emblems painted in the lane, as well as signs. Install temporary vertical delineators between the lanes at intervals to remind car drivers they must stay in the left lane. Law enforcement should first warn and educate private vehicles illegally in the right hand lane, but eventually ticket those vehicles. Note that during our bike audit the sharrows were being repainted, so that effectively the outer lane was limited to bikes, and buses pulling over to access the bus stops - a rough approximation of the design being proposed! Collect data on the following:

• Survey pedestrians, bicyclists, and transit riders on how it’s working. Confer with bus drivers on their experience having a dedicated lane, and measure bus ridership, headways, and delays.

• Collect data on Cougar Bikes, both the use in general and whether there is more uphill riding in particular.

• Collect data (not just opinions) on motor vehicle flows and delays throughout the day and at peak hours. Some complaints are to be expected, but this is why it’s critical to capture *objective* measures of the road’s performance throughout the day. There will no doubt be some delays at peak travel hours; the important question is whether they are much worse than already exist on this corridor, and how much it is due to the intersections (the primary cause of delays) rather than the number of through-lanes.

• **Adjust the approach based on the trial.** The demonstration may suggest possible improvements or design considerations: Modified signal timing, and more vertical delineators, paint, or signs at intersections to make clear the lane separation. It may be necessary to allow for vehicle turning lanes at key intersections (e.g. Nevada). The “HOV” designation could be for transit buses only, or it could include team vans or other high capacity shuttles, and also allow other official WSU vehicles. More outreach and education may be required to help all understand the new lane. And it may become clear that at certain times (e.g. game weekends) the right lanes must be opened up to all vehicle traffic.

• **Install more permanent treatments to designate the Bike/HOV lane.** Permanent paint, signs, and vertical delineators can be installed, as well as intermittent sections of raised curb if it’s determined necessary to better define the Bike/HOV lane. Continue to collect data on its performance, and monitor the community’s reaction. However, be careful not to overreact to a handful of negative opinions, and allow sufficient time for the positive benefits to accrue and residents to become accustomed to the new design before removing the lane.
2b. Create a protected bike link on N. Fairway Road.

On much of N. Fairway Road there is a great non-motorized multi-use path on the south/east side of the road. But there is a short distance on N. Fairway Road where bicycles are not accommodated, from Stadium Way eastward to the beginning of the side path near the baseball field. Bikes must ride either on a sidewalk that is actually too narrow to share with pedestrians, or in the roadway with no defined bicycle facility or shared-use designation. The removal of roughly 20 automobile parking spaces on the south side of N. Fairway Rd. would allow the creation of a two-way protected bike lane in that parking lane, connecting Stadium Way to the expanded side path. This eight foot lane can be indicated with widened delineation stripes (e.g. two lines plus diagonal hash marks, totaling 12-18 inches), painted bicycle emblems on the roadway with arrows indicating two way flow, signs, and cones or vertical delineators in the separator strip. This widened separation is required because with two-way bike traffic the bicycles riding west will be facing on-coming eastbound motor vehicle traffic.

• Mark conflict areas with green lanes. For both of these lanes, hashed green paint (see photo) can be used to increase awareness in conflict areas where the bike lane will have crossing traffic (e.g. at driveway entrances and pedestrian crossings).

3. Cougar Bike system and network enhancements.

The Cougar bikes provide an outstanding bike share system that is likely to continue evolving as more is learned about user habits and preferences. Three specific opportunities to support the system were identified during the bicycle audit.

• Many bikes end up at the Southside bike share station at the end of each day with, at times, as many as 50 bikes finishing the day at this location. As a result significant staff resources have to be used to relocate bikes back to “uphill” stations for the next day. A number of possible solutions have been recommended, and were even mentioned by students during Mark’s ASWSU presentation:

• Provide a protected bicycle facility for riding uphill on Stadium Way (see recommendation #2). A bicyclist climbing the hill will typically be much slower than vehicle traffic, which makes it difficult for the cyclist to “take the lane.” This is especially true for those who feel less steady when going slowly uphill.
• Offer real financial incentives for regular “uphill” riders, such as dollars on their Cougar Card (e.g. $10 for 10 uphill rides in a month). Obviously if it’s effective this cost can help reduce the cost of staff resources required to relocate bikes.

• Utilize electric assisted bikes in the system. This is being explored by bike share companies, and is a very realistic possibility.

• Create better way-finding along routes to bike share stations, particularly for those in more densely constructed areas with more restricted access (due to stairways, etc.).

In general be more clear about defining and enforcing the pedestrian/bicycle malls and areas that only allow certain authorized vehicles. Specific paint patterns can define these zones, and bollards, planters, delineators, and other structures can more explicitly define and narrow the entries to only allow one motor vehicle in or out at a time. By reducing the number of unauthorized vehicles driving in these central areas of campus this effectively expands the zones where Cougar Bike riders face no vehicle conflicts. This can only continue to help grow ridership.

4. Adopt a roundabouts first policy, and install two models.

The growing evidence on modern roundabouts suggest many benefits over comparable signal controlled intersections. It should be a matter of policy that any new intersection improvements should first be analyzed for a roundabout, before considering adding new or “upgrading” existing signal light infrastructure. The potential benefits include:

• Reductions in severe motor vehicle collisions, injuries, and fatalities.

• Reductions in pedestrian and bicycle crashes and injuries.

• Typically reduced vehicle delays, and dramatically smoother motor vehicle flows at off-peak hours.

• Lower long-term maintenance costs than comparable signal light infrastructure (no hardware, lights, electricity), and initial installation costs comparable to signal lights.

• Continued normal and safe operation even during power outages.

Two locations appear ideal for Pullman’s first roundabouts:
Install a roundabout on Terre View Drive at N. Fairway Road. This intersection was mentioned as already being considered for a roundabout, and the workshop process affirmed that it would be an ideal location for a modern, compact, single lane roundabout, with splitter entry islands. There is a great deal of residential density, particularly student housing ("Apartment-land"), and the wide multi-use side path passes this intersection, so there is great likelihood of continued increases in pedestrian and bicycle traffic in this area. It is a major northeast gateway into the city for vehicle traffic; the center of a circle could hold an artistic or cultural feature welcoming people to Pullman.

Install a roundabout on Terre View Drive at Grimes Way. The walk audit from the PACCAR heading east down Grimes Way to Terre View Drive provided perspective on the importance of the Terre View/Grimes intersection as an important gateway onto campus. Traffic speeds were surprisingly high on Terre View Dr. and all travelers along this road, including bikes and pedestrians, would benefit from the traffic calming effect of a circle. Also the traffic volume can be high at peak hour, with many vehicles making the left turn onto Grimes, from northbound Terre View. A small roundabout or mini-circle here would have an extended mountable curb and splitter islands on each leg, and this would make left turns much easier and eliminate the need for a left turn lane. The current left turn lanes could thus be replaced by the circle’s entry splitter islands which act as pedestrian median islands.

This is also a critical link in the pedestrian/bicycle network, so a high priority is creating a safe crossing for users on the trail along Terre View as it crosses Grimes, and those wishing to cross from the campus side of Terre View over to the arboretum trails. The center island on Grimes would provide the perfect median refuge for the trail crossing, and the center island on the south leg of the intersection (Terre View) would act as a median refuge for a pedestrian crossing to the arboretum.

Note that the bicycle lanes on Grimes need improvement. During repaving the height difference between the pavement surface and the concrete gutter must be eliminated, as it’s quite dangerous. It also appears there is enough width for vehicle travel lane to be slightly narrowed, and the bike lane stripe to be widened to provide some visual buffering between bicyclists and vehicles. Even expanding to a 12 inch buffered lane stripe can be beneficial as it provides better visual separation, and narrowing the motor vehicle lane can have a modest traffic calming affect.

5. Paradise St. and Main St. short and long term improvements.

Main Street and Paradise Street comprise the central district of downtown Pullman, and if the community is to thrive economically and socially then this area must become much more pedestrian- and bicycle-friendly. For
the businesses to flourish this must become an area in which people want to walk, linger, and socialize, as well as to frequent for convenient and essential services. It was mentioned a number of times that many residents and students go to Moscow for entertainment in its vibrant downtown, and a bike ride to Moscow on the Chipman Trail is considered a worthy outing. The most effective way to become such a flourishing destination is to be an enticing place to live, and this should be the goal of Pullman and a key tenet of the central business district. Fortunately some of the raw material of downtown Pullman—a grid network, the creek with the trail alongside it, many businesses, the wonderful visitor center—is sound. But many improvements were suggested during the walk audit and other discussions to make welcoming human beings, not just motor vehicles, the priority for downtown Pullman. These naturally fall into two phases of work.

**Phase I: Demonstration and low-cost projects to increase pedestrian and bicycle safety and appeal.** These are projects that are not necessarily very expensive and generally can be implemented in 3 to 12 months.

- **Curb extensions to slow traffic and improve crosswalk safety.** Anywhere there is on-street parking in the downtown there is the opportunity to add curb extensions at crosswalks. In particular, curb extensions at the major intersections will shorten pedestrian crossing times, make them more visible beyond parked vehicles, and calm traffic (especially turning vehicles) somewhat. Specifically curb extensions were suggested for the following locations:

  - E. Main Street & Spring Street. The entry angle of Spring Street creates an oversized roadway that dramatically separates the visitor center site from the core of downtown. Two artistic and engaging curb extensions could narrow the Spring Street entry onto Main St., and have entering vehicles somewhat more perpendicular to Main St. which improves sight lines.

  - Main Street at Pine Street. This is a key downtown bus stop, and is next to the plaza connecting Main Street to the pedestrian/bicycle bridge linking to the trail. A curb extension on the north side of Main could be the full length of the plaza and could as a bus stop, or could be configured to define a bus pull-out stop. Curb extensions on the south side of Main St. at Pine St. would complement this, and these features are all the more important with the new residential development on this corner.

  - E. Main Street and Paradise Street. The acute angle of Paradise Street entering Main Street again creates a long exposed pedestrian crossing. Curb extensions here can shorten crossing distances and make the vehicle entry onto Main St. more perpendicular, improving sight lines.
• Grand Avenue, at the Main Street and Paradise Street intersections. These are very important crossing for pedestrians coming from the west trying to access the core business district, so curb extensions could greatly improve the comfort and safety of pedestrians crossing Grand Avenue.

Any of these can be installed as low-cost pilot projects, using paint and vertical delineators (see photo). They could even first be tried as short-term “pop-up” projects for a weekend or week, with materials such as paint, planters, fake turf, cones and painted tires. Consider utilizing the corner space created by curb extensions, placing way-finding or informational signs, bike racks, benches, and public art in these areas to demonstrate the opportunity. As in recommendation 2a, it is important to collect real data on the effectiveness of any installation. This is most effective if before and after data is collected such as vehicle speeds and yielding behavior, pedestrian behavior (are they using the crosswalks, waiting for the pedestrian signal?) and satisfaction (through intercept surveys).

• **Wayfinding to connect bicyclists to the trail and downtown services.** As bicyclists enter town on the trail or on the roads, there should be clear and consistent way-finding signs connecting them to destinations with times (not distances) to key locations. In particular, as bicyclists enter downtown on E. Main Street it is not entirely clear how to connect to the trail near the visitor center. On street markings (bike emblems and perhaps a trail logo) should accompany signs for this important connection. A link could even be created through the visitor center grounds, as this outstanding facility should be a bicycle hub for residents and visitors.

• **Do a demonstration (pop-up) conversion of Main and Paradise to one-way streets.** The long-term goal should be to revert these two important streets to one-way streets as their absolutely essential purpose is to give people access to downtown businesses and housing, not to speed cars through Pullman’s most important district. A great first step would be to actually reconfigure these two roads for a day or weekend, using signs, cones, and other street furnishings. Because Main Street is essentially five lanes (three travel lanes and two parking lanes), it would be possible to try multiple configurations during different pop-up events. Two worthy trials:

  • One travel lane in each direction with parking lanes, plus a central median. This median could be created with materials such as temporary paint, painted tires, cones, planters, delineators, and hay bales. This allows the community to design one or two mid-block pedestrian crosswalks, as the median will act as a pedestrian refuge; done well it will give Main Street the feel of a grand central boulevard.

  • One travel lane in each direction with parking lanes, and a two-way cycle track. This design would create a protected bicycle facility for the
two central blocks of Main Street. The configuration, from north to south, would be: a two-way cycle track in the existing north side parking lane; a parking lane; a westbound travel lane; an eastbound travel lane; and a parking lane. It would be very interesting to see if cyclists are drawn to a protected bike lane in this important business district.

Phase II: Permanent changes to make downtown an aspirational district. These permanent improvements can be guided by what is learned in the Phase I demonstrations.

- **Make the curb extensions permanent.** The final size and geometry can be based on the pop-up and demonstration treatments.

- **Revert from Main Street and Paradise from one-way to two-way streets.** The final design should be informed by pop-ups that test different configurations.

- **Install roundabouts for three downtown intersections.** If Pullman aspires to be a national class 21st century city, it will change the very feeling of the downtown experience from pass-through to destination. Installing roundabouts at three key intersections could complete that transformation:
  
  - Paradise Street and Main Street.
  - Grand Avenue and Paradise Street.
  - Grand Avenue and Main Street.

It may be necessary for the Main Street and Paradise Street roundabouts on Grand Avenue to be connected in some way to maintain flows at peak hours, but creative and capable engineers will be able to explore and model the possibilities.

6. Traffic calming and safety demonstration projects on College Hill

The walk audit up onto College Hill suggested two specific low cost opportunities for pedestrian and bicycle improvements that, if found successful, could become permanent infrastructure when the opportunity arises, such as during repaving projects and right-of-way disturbances for utility repairs.

**Pop-up curb extensions and curb ramps.** A common problem throughout the neighborhood was cars that were parked in or dangerously close to crosswalks, forcing pedestrians to step almost blindly into the traffic lane from behind a parked vehicle. It was also observed that some sidewalks lacked ADA curb ramps at intersections. As a demonstration, low cost materials such as paint, temporary vertical
delineators, and planters could be placed to create curb extensions at locations that are known to be high pedestrian and motor vehicle traffic areas. At those lacking curb ramps, temporary wood or asphalt curb ramps could be installed to improve accessibility in the short term, and as demonstrations to obtain feedback from pedestrians regarding their need and effectiveness. This can help make the case for funding more permanent treatments, such as the good work already done on several ADA curb ramps on Colorado Street.

• **Mini-circle.** This is a very small roundabout, often used to replace an all-way stop intersection. There is typically a raised center but tapered, mountable curb so that the rear tires of larger vehicles can easily roll over the edge of the circle.

• **Speed table.** A crosswalk or entire intersection is raised like a speed bump, but is flat on top so that it is less abrupt yet still slows traffic. The incline on the table is gradual, not severe, and the height also serves to make pedestrians more visible (particularly children) when they are walking across on the “table.”

• **Median Island.** A raised island in the center of the street, this both slows traffic and divides the crossing task for the pedestrian and provides a mid-crossing refuge space. A median island, combined with a curb extension on the south side of the street where parking is allowed, may be an appropriate treatment for the eastern leg of the Colorado and Monroe intersection. The crossing is wide here, and although Colorado has a bike lane (or widened parking lane) to the west, it becomes too narrow to east for a bike lane so it will have to be a shared use bike/vehicle lane. Indeed the best solution is to traffic calm the entire street so that bikes and vehicles safely share the lanes for the full length from Maple Street to campus.

The goal of these recommendations is three-fold. First, make the community and campus safer, more inviting, and more accessible for walking, bicycling, and transit access. Second, over time this should help to ease traffic congestion and parking demand on campus and downtown as walking, bicycling, and transit become increasingly appealing and more of a social norm. Third, increasing the walkability, bike-, and transit-friendlyness and functionality of the downtown in particular will be absolutely central to its continued revitalization and rebirth as an economic and social center of the community and region.
References & Resources:

Washington State DOT Complete Streets information, including links to existing city policies and funding programs. [https://www.wsdot.wa.gov/LocalPrograms/ATP/CompleteStreets.htm](https://www.wsdot.wa.gov/LocalPrograms/ATP/CompleteStreets.htm)

*Complete Streets*: National coalition working for streets that work for pedestrians, bicyclists, transits riders, and drivers of all ages, incomes, and abilities: [http://www.completestreets.org](http://www.completestreets.org)


Bethel VT Better Block demonstration includes pop-up traffic calming, bike lanes, and retail stores, organized with the AARP. [https://www.youtube.com/watch?v=5KE5UGY6uso](https://www.youtube.com/watch?v=5KE5UGY6uso) (4:40)

Better Block: educates, equips, and empowers communities and their leaders to reshape and reactivate built environments to promote the growth of healthy and vibrant neighborhoods: [www.betterblock.org](http://www.betterblock.org)

*Walk [Your City]* assists with creating low cost way-finding signs for pedestrian and bike routes: [www.walkyourcity.org](http://www.walkyourcity.org)