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Shared-Use Streets – An Application of "Shared Space" to an American Small Town

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Authors:
Celeste Gilman (corresponding author)
IBI Group
506 Second Avenue, Suite 600
Seattle, Washington 98104
Phone: 206.521.9091
Fax: 206.521.9095
cgilman@ibigroup.com

Robert Gilman
Mayor Pro Tem
City of Langley
112 Second Street
Langley, WA 98260
Phone: 360.221.6095
Fax: 360.221.6045
rgilman@context.org

ABSTRACT

Langley, Washington, a semi-rural town of 1,050 people, is expected to grow by 40 to 100 percent over the next 20 years. One of the town's biggest assets is its pedestrian-friendly character, which is currently supported by low traffic volumes.

Anticipating this growth, the City is developing new street design standards to support all users and modes. One of the new street types is "shared-use," which mixes pedestrians, bicyclists, and drivers in a low-speed environment that emphasizes the community function of the street. Several streets already operate in this way; by codifying standards, the benefits can be preserved and distributed to more areas.

Precedent for shared-use streets comes from the European "shared space" movement, which differentiates between the traffic world (the highway) and the social world (streets within a town). Traffic-world features (traffic signals, lane markings, etc.) are removed within the town. Streets are instead designed as public spaces, providing strong contextual cues to drive slowly and carefully while implementing features that support safe and enjoyable use by walkers, bikers, and others. Shared space has a history of over 20 years, successfully demonstrating improvements in safety and livability.

Adapting shared space to a semi-rural American setting requires a combination of place-sensitive solutions. Emerging designs encourage slow speeds through the use of innovative, community-based traffic calming elements on designated shared-use roadways. This paper represents proposed shared-use street design standards, which will be further refined throughout the planning and implementation process.

INTRODUCTION

Langley, Washington is a small town on Whidbey Island, north of Seattle. It is already an unusually walkable town. This paper describes an initiative by Langley's city government to enhance that walkability and expand the "public space" character of its low traffic-volume streets.

The town is located about four miles from the nearest highway. The city limits encompass approximately 640 acres within a 4.0 mile by 2.5 mile area. The historic core is laid out in a grid pattern of approximately 300 to 600 foot (91 to 183 meter) blocks. Primarily residential development has been constructed along the roads radiating from the town center. An aerial view of Langley is provided in Figure 1.

FIGURE 1 Langley, Washington.

The total population of the town is about 1,050 people. Langley is one of the designated urban growth areas for Island County. The town is expected to attract anywhere from 400 to 1,000 new residents over the next 20 years.

With the concentrated grid pattern, and a central core of shops and services, Langley is the type of town where people walk to the post office and run into friends and neighbors along the way. Many people also walk for pleasure and exercise along the town's quiet country lanes. Currently, only a few streets in the town have sidewalks, or even asphalt walkways constructed as part of the roadway. Most streets are shared by pedestrians, bicyclists, and cars. Traffic volumes are sufficiently low that this arrangement has been successful. However, the anticipated growth in the town could jeopardize the current balance between modes. In anticipation of this issue, the town is in the process of developing a new set of street standards. These standards are being guided by Goal 2 and its Policy 1, which were added to the Transportation Element of Langley's Comprehensive Plan in 2006. "Goal 2: Design, regulate, and maintain Langley's roads

and streets in a way that balances the needs of all uses and users, recognizes the streets' role as public spaces, retains Langley's small-town character, and minimizes impervious surfaces. Policy 1: The city should develop and implement a set of street types (designs and associated regulations) to achieve this goal that can be used in different parts of the city depending on traffic volumes, anticipated future use characteristics, and existing or planned surrounding land uses" *(1)*.

The intention of the new street standards is to meet the circulation needs of the community while also furthering social and environmental objectives by sensitively applying tailored solutions that meet the needs of a particular situation, rather than a one-size-fits-all approach. Some streets will warrant separate facilities for pedestrians, bicycles, and motorized vehicles, while on other streets it will be possible for all modes to continue to share the same roadway.

The concept of complete streets, with separate facilities for different modes, has been well developed (even if there is a strong ongoing need for application of the concept to many existing streets). See for example, the Institute of Transportation Engineers' *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities*. The merits of, and strategies for, developing complete streets will not be repeated here. This paper will focus on the concept and design of shared-use streets.

Examples of Existing De Facto Shared-Use Streets in Langley

While many of the residential streets in Langley are currently, in practice, already shared use, there are two streets that serve as inspiration for the effort to formalize shared-use streets. These two well-loved walking streets are Edgecliff Drive (about 1.5 miles/2.4 kilometers long and mostly 18 feet/5.5 meters wide) and Al Anderson Avenue (about 1.25 miles/2.0 kilometers long and between 18 and 22 feet/5.5 and 6.7 meters wide). The width of the street allows strolling pedestrians to group and regroup according to the flow of conversation, while also permitting them to easily get out of the way if vehicles need to pass. Both have 25 mile per hour (mph) speed limits (40 kilometers per hour (km/h)). Measured peak traffic volume is 52 vehicles per hour on Al Anderson. While data is not available for Edgecliff, it is likely similar. Both have 1- to 2- foot-wide (0.3 to 0.6 meter) gravel and grass shoulders. Edgecliff has homes with driveways all along its length. Al Anderson has long stretches without driveways and serves as a collector for other local access roads. Figure 2 shows a view of Al Anderson Avenue.

FIGURE 2 Al Anderson Avenue.

Generalizing from the current characteristics of Edgecliff and Al Anderson, the starting point for the characteristics of shared-use streets is that they are relatively narrow, low traffic-volume, low speed streets that serve a variety of uses and users.

BENEFITS AND CHALLENGES – AN OVERVIEW

The initial motivation for shared-use streets comes from the social benefits of using streets as multipurpose public spaces, not just corridors for motor vehicles. The innovative Dutch traffic engineer Hans Monderman makes a distinction between the world of the highway (the traffic world) and the world of the settlement (the social world). In this European view, the traffic world is appropriately oriented to vehicles, speed, predictability, and uniformity. Correspondingly, the social world of public spaces in towns and cities is appropriately oriented to people, the variable pace of pedestrians, diversity, spontaneity, and the unpredictability that comes with these. In Monderman's view, vehicles find their place in the social world by accommodating to the social life of the street – the social life of the street should not be modified to accommodate vehicles. In these terms, shared-use streets are definitely part of the social world. As such, they are public spaces that connect the buildings on either side of the street, rather than dividing them. They are places for the kind of spontaneous interactions among neighbors that are vital to building the fabric of community.

There are also other significant benefits that come primarily from the narrowness of the area devoted to circulation:

- Reduced impervious surface serves the environmental goals of Low Impact Development by generating less stormwater runoff *(2)*.

- Less pavement width allows more efficient use of land, thus reducing housing costs.
- Less cost for road construction (and eventual maintenance) also reduces housing costs and saves taxpayer funds.

While so far there have been no significant accidents on Langley's de facto shared-use streets, the primary concern raised about shared-use streets has been about the safety of mixing multiple uses and users in the same space. The central design challenge in formalizing shared-use streets is to optimize the social, environmental, and economic benefits while minimizing the safety risks.

PRECEDENT FOR SHARED-USE STREETS

Beyond the informal sharing of streets between different modes in settings such as those described in Langley, there are examples of streets created with the explicit intention to mix pedestrians, bicyclists, and drivers in a way that puts all modes on a more even footing.

The concept of "shared space" has been gaining momentum in Europe, taking inspiration from pioneers such as Hans Monderman and Ben Hamilton-Baillie, a British urban planner and transport specialist who has been promoting shared space in the UK. Shared space recognizes that streets are the most accessible, pervasive, and numerous public spaces in communities and "strives towards a design and layout of public spaces where traffic, human exchange and other spatial functions are in balance" *(3)*. Instead of being a monoculture of traffic, streets are reclaimed as a fully functioning ecosystem of human interaction, commerce, play, natural processes, and all modes of transportation. Vehicles are not banished, but the streets are designed foremost as public spaces, which cues drivers to act as civil, social beings rather than focused, speeding human-machine hybrids. Often the most striking feature of shared space streets is the lack of conventional signage and traffic control devices. This is coupled with an overall design treatment that creates streets and intersections that look more like plazas and pedestrian routes than roads. One of the main premises of shared space is that the instruments of traditional traffic engineering create a barrier that inhibits drivers' abilities to read contextual clues. Remove the devices that tell drivers they are in a predictable environment where everything will happen according to the signs, and drivers slow down and pay attention to what is happening around them. In this environment, the question of who has the right of way is negotiated through eye contact and social interaction between all road users.

The first project using this approach to street design was constructed in Oudehaske, Netherlands in 1985. By creating a square-like quality through replacing the asphalt roadway with clinker bricks and emphasizing the village church and village pub through urban design, speed reductions of 50% were achieved for a roadway with an average daily traffic (ADT) count of 8,000 vehicles *(4)*.

Since then, a growing number of projects have been completed in the Netherlands and several other European countries. One of the best-known projects is the Laweiplein intersection in Drachten, Netherlands. This intersection handles approximately 22,000 vehicles per day *(5)*. Traffic signals were removed and the intersection redesigned to more closely resemble a public plaza, featuring large fountains integrated into the corners of the intersection. The Noordelijke Hogeschool Leeuwarden (NHL) University of Applied Sciences conducted a comprehensive before and after evaluation of the

intersection. They found significant safety improvements. In the nine years preceding the reconfiguration of the intersection in 2003, there were between four and 13 accidents per year, with a mean of 8.3 accidents. Four of those were serious accidents. In the two years following the redesign for which complete data is available (2004 and 2005), there was one accident per year – one damage only accident in 2004 and one non-serious injury accident in 2005 *(6)*.

Shared space has been tried and proven to provide both social and safety benefits in a variety of successful applications. Shared space has been applied to streets with ADT volumes of 3,000 to over 20,000 vehicles. It has been applied specifically at intersections and along whole corridors. At intersections, all modes mix freely. On some streets, all modes mix freely along the whole length of the street as well, while on others, distinct sidewalks are provided but the expectation is maintained that pedestrians could be in the roadway in any place at any time. However, these examples of shared space streets from Europe differ from the streets in Langley in several key ways. Most significantly they are streets in comparatively urban environments, with significant use by pedestrians and bicyclists. The streets in Langley are much more rural in character with low demand from all modes. One of the challenges of implementing shared-use streets in Langley will be maintaining the expectation that they are a "people place" when people are not always around.

STRATEGIES FOR ENHANCING SAFETY

Langley's de-facto shared-use streets have so far been accident free and well loved, which shows that pedestrians, bicyclists, and vehicles can successfully mix in a low traffic volume, low speed environment. However, in formalizing the concept of shared-use streets it is necessary to look more closely at what makes them work and how they could be designed to work even better. Much of the guidance for the good design of shared-use streets can be gained by looking at what makes the current streets safe and how safety could be further enhanced. There are four primary safety factors: speed, visibility, attentiveness, and pedestrian escape.

Speed

Probably the most important factor in successfully mixing multiple uses and users is to keep everyone's speed relatively low. The critical question is: how low does it need to be?

Research by Great Britain's Department of Transportation, and used in the United States by the Federal Highway Administration and others, shows that the probability of death in a pedestrian-car collision goes from 5% at 20 mph (32 km/h) to 45% at 30 mph (48 km/h), 85% at 40 mph (64 km/h), and 96% at 50 mph (80 km/h) *(7)*. Figure 3 illustrates this relationship.

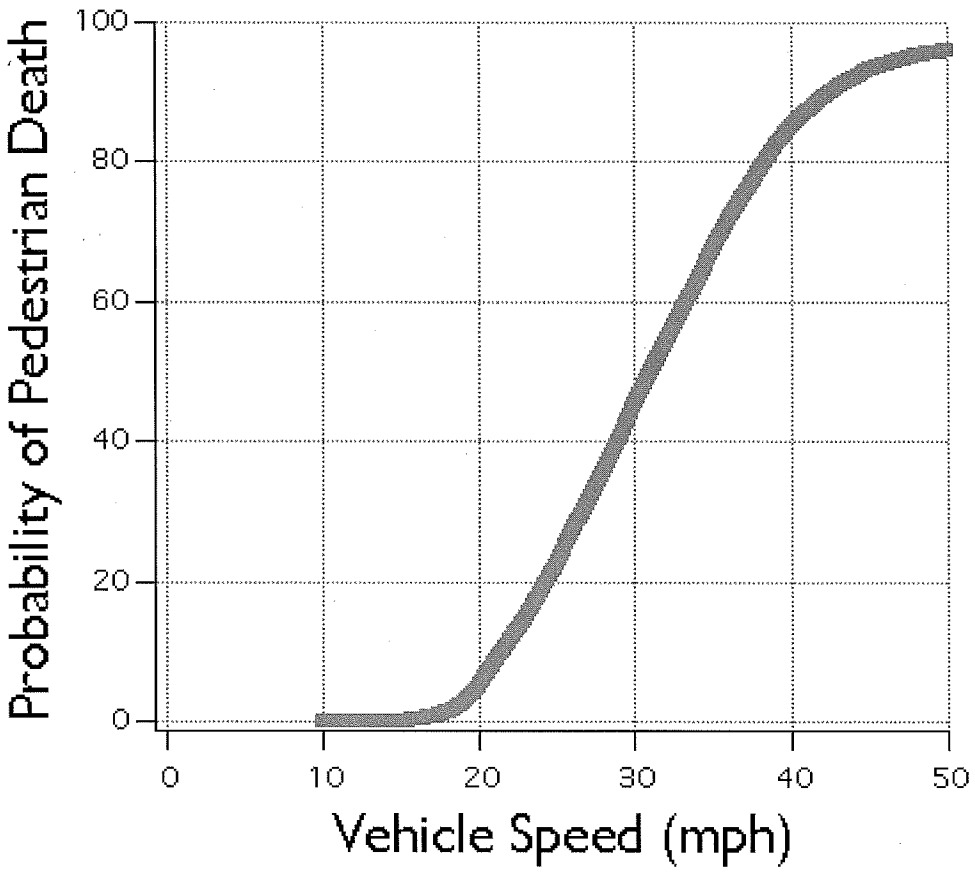

FIGURE 3 Probability of Pedestrian Death Relative to Vehicle Speed.

Obviously, the slower the speed, the safer the street. However, setting the speed limit too low runs the risk of frustrating and alienating drivers, especially during those times when there are no other users on the street. Nevertheless, the difference between 20 mph and 25 mph (32 to 40 km/h) is significant. Twenty miles per hour seems to be a "sweet spot" for the maximum speed on shared-use streets. This correlates well with 20 mph School Zones. It is also the lowest allowable speed limit under the Revised Code of Washington *(8)*. It is important that cyclists stay below this speed as well.

For successful implementation, it is important that this speed limit be designed into the roadway and not just regulated through signage. An objective of the street design is to not only ensure drivers stay within the speed limit, but to create an environment that makes it feel natural to even drive below the speed limit. The street should be designed to actually feel unsafe at speeds approaching and above 20 mph (32 km/h). Shared space recognizes the reality of risk compensation and capitalizes on it by creating places that are made safer by feeling less safe. "When a situation feels unsafe, people are more alert and there are fewer accidents" *(3)*. Drivers slow down and all road users keep sharply aware of what is happening around them. A successful design will encourage drivers and

bicyclists to go slowly while creating an environment that is comfortable for pedestrians. A balance must be struck between encouraging walking through prioritizing the social life of the street, without giving pedestrians a false sense of security.

Design Strategies

Design strategies for encouraging slow speeds consist of physical constraints and psychological cues. Key physical constraints include roadway width and curves. The faster a car is traveling, the greater the lane width required for comfortable and safe travel. Correspondingly, the narrower the lane, the greater the pressure on the driver to drive slowly. Shared-use streets should have a paved width that corresponds to the minimum width that still allows two cars to pass safely at slow speeds. A width of 18 feet (5.5 meters) seems to strike a good balance. This allows 9 feet (2.7 meters) per car when two vehicles pass, which is wider than the typical parking lane width (7 feet/2.1 meters) but narrower than typical travel lanes (11 feet/ 3.4 meters) *(9)*. Curves do affect driving speed, but are more difficult to add to an existing road. Curves should be considered a positive feature and curvature can be accentuated to reduce the "runway" effect of long, straight stretches of road. Psychological cues will be dealt with later in the section on attentiveness.

Visibility

Along with ensuring slow speeds, maintaining good visibility is critical to achieving a safe facility. Sight distances should allow drivers ample time to react even if they are exceeding the speed limit. However, care should be taken when designing for ample sight distance to not send a cue to drivers that it is acceptable and safe to drive above the speed limit.

Design Strategies

Minimum sight distances on shared-use streets should be approximately 125 feet (38 meters). This distance is based on a driver perception time of 2 seconds and a coefficient of friction of 0.4 for a vehicle traveling at 25 mph (40 km/h). While it is impractical to set a maximum sight distance, longer is not necessarily better. Shorter sight distances reinforce the message that the street is an unpredictable environment and one should drive slowly and with care.

The greatest challenge regarding visibility is visibility at night. Many of the candidate shared-use streets in Langley do not currently have streetlights. Consideration should be given to providing some level of lighting. This could potentially be provided by pedestrian-scaled solar-powered lights. Another potential tool for increasing visibility is to provide flashing red or yellow lights to area residents that can be clipped to clothing and worn while walking. In Sweden, where it can be dark for around 20 hours per day in the winter, people typically wear plastic reflectors, routinely carrying them in their pockets and then taking them out when they go walking.

Attentiveness

Speed and visibility deal more with the external conditions, while attentiveness addresses a driver's internal ability to notice and avoid a potential conflict with other road users. The role of inattentiveness in collisions is hard to quantify accurately, since it is an

internal state and most drivers involved in a collision do not want to admit to being inattentive. However, research by the National Highway Traffic Safety Administration and Virginia Tech Transportation Institute published in 2006 found that 65 percent of near crashes and almost 80 percent of crashes involve driver inattention *(10)*. While attentiveness is an internal state, the environment can encourage attentiveness or subtly suggest that it is unnecessary. This concept is central to shared space and the idea of "mental speed bumps" put forth by David Engwicht. A social inventor and street philosopher from Australia, David Engwicht has identified three mental speed bumps: intrigue, uncertainty, and humor *(11)*. These "speed bumps" engage drivers with the environment around them, causing them to drive more slowly, attentively, and courteously.

Design Strategies

Encouraging attentiveness involves both negative and positive strategies. The first strategy is to avoid sending signals that attentiveness is not required. The second strategy is to engage drivers with the environment around them.

As the experience of shared space shows, signs and standard traffic engineering devices can act as a barrier between drivers and their environment. These devices should be minimized. There should be no lane markings. Lane markings imply a regulated roadway to drivers. They are a cue that it is safe to go faster and that there will be minimal unexpected occurrences (such as pedestrians on the roadway). This is the opposite of the message that the design of shared-use streets should convey. The shared space approach is to have no regulatory signs whatsoever. It may be appropriate to have one 20 mph speed limit sign at the entrance to each shared-use street to provide people with a clear understanding of speed expectations. The speed limit could be painted on the roadway rather than posted on a standard speed limit sign. Graz, Austria has a citywide 30 km/h (18.6 mph) speed limit on all streets except a few major streets (where the speed limit is 50 km/h(31 mph)) *(12)*. They paint the speed limit in large letters on the street at the entrance to each 30 km/h zone.

Engaging drivers with the environment around them can be done through using "mental speed bumps" and by creating an environment that is human scale and speaks to the social use of the space.

The first opportunity to implement these objectives is to provide a distinctive gateway at the entrances to shared-use streets. Ideally, this should be a creative element developed with the local neighbors actively participating in the design and implementation. A creative, grassroots approach can help develop a sense of neighborhood identity and pride. The roadway can be painted at the entrance to the shared-use streets zone by the neighbors, similar to an intersection repair, as pioneered by the City Repair Project in Portland, Oregon *(13)*. A gateway arch or banners could also be built as a neighborhood project. Engaging the creativity of the neighbors helps generate commitment to shared-use streets among residents, and the physical results are likely to be more intriguing and humorous than a more formal effort would produce. The community activity is a way of claiming the street as community space, and it leaves a lasting reminder to visitors and residents that they are guests in that community space when they are using the street.

Intersections along the shared-use street are another opportunity for creative and engaging treatments. The crossroads of two streets is a natural miniature square or plaza. Where two shared-use streets intersect, this function can be fully supported. Neighbor initiated amenities can be provided at the corners of an intersection, such as benches, tea stations, chalk board drawing stations, and community bookshelves *(13)*. A mural can be painted on the intersection to claim it as a "place" and not just a space to pass through. Intersections are demanding of road users, requiring navigation of a safe route through multiple potentially conflicting movements of other users. Enhancing the intersection with art and amenities reinforces the message to expect the unexpected and travel slowly and with caution.

Where a shared-use street intersects a complete street, the other street typology proposed for Langley, the gateway treatments discussed previously provide a clear delineation of the two zones. One aspect that needs to be treated with additional care is the transition for pedestrians. Pedestrians will go from being able to occupy a significant portion of the width of the roadway to being channeled onto sidewalks along the edge of the roadway. The sidewalks need to ramp down to the shared-use street, providing accessibility for pedestrians in wheelchairs and providing a smooth transition. This ramping needs to be done in such a way as to not increase the perceived turning radius of the corner. Materials with different colors and textures, as well as paint, can be used to differentiate the ramped sidewalk from the road surface.

One of the challenges of the de facto shared-use streets examples in Langley provided earlier is the fact that they are both relatively long, straight streets. To minimize the effect of "being on the open road," where it is easy to look far into the distance and pick up speed while driving, a finer-grain definition should be brought to the street, creating the impression of a series of rooms rather than a long corridor. Street trees can be planted along the side of the shared-use streets, with a different species every few hundred feet. The trees will literally give the sense of a room, providing walls and ceiling to the street, while the varying species will give distinction to different sections of the street. Trees also help keep speeds low by increasing the "visual friction" of the street.

The final recommendation for increasing attentiveness is to encourage property owners to use the edge of their property (and/or the adjacent right-of-way that is set aside for potential future expansion but is not currently used as part of the street) for interesting installations, such as gardens, art, lemonade stands, or benches. This may seem counterintuitive – encouraging driver attentiveness by giving drivers, and others, interesting features to look at – but intriguing drivers, signaling to them that they should expect the unexpected, and introducing humor encourages more attention to the environment and slower speeds. Interesting installations along the street edge enhance the pedestrian environment and remind drivers that they are guests in a community space.

Pedestrian Escape

With low traffic volumes, slow speeds, adequate visibility, and an environment that encourages driver attentiveness, pedestrians and cars should be able to comfortably share the same roadway most of the time. However, there may be times when two cars are passing, a driver does not seem to be sufficiently attentive, or an approaching car is moving uncomfortably fast, that a pedestrian may feel more comfortable temporarily stepping off of the roadway. The focus on speed, visibility, and attentiveness is about

managing driver behavior to minimize the risk to other road users. Providing an easy route of escape for pedestrians gives them a fallback that is in their own control if the other measures to assure safety do not seem adequate in a particular situation.

Design Strategies

Beyond the road surface there should be a strip of unpaved shoulder that provides a refuge area for pedestrians who want to step off the road surface when cars pass. This shoulder could be low grass or other material. Two of the challenges for this portion of the street will be to ensure that this area does not increase the perceived width of the road and to ensure that neither drivers nor pedestrians view this as a segregated facility that pedestrians should use instead of the roadway.

Parallel parking is a valuable tool for traffic calming and buffering pedestrians from the roadway when separate pedestrian facilities are provided. However, on the shared-use streets discussed here, on-street parking would present an obstruction and a hazard. Having cars parked along the side of the road would block the path of pedestrians to the shoulder in the situation when passing vehicles made it feel uncomfortable to be on the roadway.

In the highly unlikely situation of a vehicle leaving the roadway and endangering a pedestrian, the street trees proposed earlier may provide a level of physical barrier between the vehicle and pedestrian.

SHARED-USE STREET DESIGN SUMMARY

Recognizing that shared-use streets are an appropriate solution for a particular situation, and that changing situations may call for different solutions, adequate city right-of-way should be secured and maintained to allow for future street expansion. A right-of-way of approximately 56 feet (17 meters) should comfortably accommodate future potential demand for sidewalks, planting strip/natural stormwater infrastructure, parking, and vehicle travel lanes *(9)*.

Within that right-of-way, the following elements are proposed for shared-use streets:

- Narrow paved roadway (18 feet/5.5 meters wide)
- Level grass shoulders available for pedestrians to step off the road temporarily (5 feet/1.5 meters wide on each side)
- Creative gateway treatment
- Creative intersection treatments
- Street trees of varying species
- Pedestrian scale street lights
- Minimum sight distances of 125 feet (38 meters)
- No on-street parking
- Signage limited to one 20 mph sign (free-standing or painted on the roadway) at the shared-use street entrance

Natural stormwater management can also be a part of the initial shared-use street design. With an 18-foot roadway and approximately 5 feet of shoulder on each side, there would be approximately 28 feet (8.5 meters) of right-of-way not dedicated to transportation functions within the 56-foot (17 meter) right-of-way. Part of this width could be used for natural stormwater management. Depending on the character of the

surrounding soils, this area could provide the functions of detention, retention, infiltration, bio-filtration, and/or interception.

IMPLEMENTATION

In many ways, what makes a street a shared-use street has more to do with the way people use it than what it looks like. Therefore, the social aspects of implementation are particularly critical. The City may initiate designation of a street as a shared-use street, but the residents along that street should be involved in the process. At a minimum, an informational pamphlet should be sent to each household and a public meeting held. Better yet, it could be a requirement for implementation that 50% of the households sign a petition in favor of the new designation. The better people understand the concept, and the more they are invested in supporting it, the more successful shared-use streets will be. There are also opportunities for local residents to be involved in the design and physical implementation of the shared-use street, such as gateway treatments, interesting amenities along the street, and creating and maintaining landscaped natural stormwater treatment facilities.

Implementation of the physical improvements need not happen all at once. The new speed limit can be implemented first, following public education and approval of the shared-use street designation. Artistic gateways and intersection painting can occur as there is community interest and commitment to design and implement the projects. Modification to existing roadways, such as reducing street width and installing level grass shoulders, can be implemented as funding becomes available and if concerns have been raised over the existing conditions.

One aspect of implementation is the phased implementation of the full shared-use street design recommendations, but the ongoing evolution of the street should also be considered. It is anticipated that shared-use streets are most suitable at very low traffic volumes. For non-motorized road users to have a relaxed experience, there should be extended stretches when no vehicles pass. Translating this qualitative criterion into a quantitative threshold, vehicles should pass no more frequently than an average of one vehicle every 30 seconds. In other words, peak traffic volumes should be no more than 120 vehicles per hour. A recent traffic count on Al Anderson Avenue found traffic volumes of 52 vehicles per hour between 4PM and 6PM. This traffic volume threshold may be adjusted upwards if it is found that pedestrians continue to feel comfortable sharing the roadway even with higher traffic volumes following the shared-use street improvements. Traffic volumes on most streets in Langley that would be suitable shared-use streets are largely a function of the catchment area of households that use that street to travel to other destinations and the trip making patterns of those households (including mode split). It is not a given that increasing the number of households must increase vehicle traffic by a set and steady rate. If transportation demand management is paired with increases in density, more growth can occur before the threshold for effective functioning of shared-use streets is exceeded.

As the city grows, some streets that functioned as shared-use streets may eventually warrant separate facilities for pedestrians. The experience from Europe shows that streets can be claimed foremost as social spaces with much higher traffic volumes than those in Langley. However, over a certain threshold, which is a combination of traffic volume and speed (as well as relative pedestrian volumes), it is safer and more

comfortable for pedestrians to have sidewalks. In this scenario, sidewalks are provided as a courtesy, but the expectation remains that pedestrians are free to enter the roadway at any point, not just at intersections.

The City of Langley may consider requiring a development fee that goes into a fund for future sidewalks and other multimodal facilities. The City can also encourage minimal car use through a variety of means to support the continued successful sharing of the street by multiple modes.

A continual evolutionary process is anticipated, from the current de facto shared-use streets, through implementation of recommended measures to maintain and enhance the shared-use function of those streets as the city grows, and potentially to street designs that more closely mirror the European shared space streets. By establishing the intention to enhance the community, ecological, and economic functions of Langley's streets as the city grows, and bringing resources to bear to implement that intention, it is hoped that the changes brought by development can be harnessed to increase quality of life rather than erode it.

CONCLUSION

Langley is pursuing the development of shared-use streets based on the belief that they hold the promise for improved community, environmental, and economic performance compared to conventional street-use approaches. The development and implementation of shared-use streets is still in the early stages. Having streets that are shared by pedestrians, bicycles, and vehicles is not a new concept. However, prioritizing non-motorized modes and the community function of the street is not yet established practice. Part of the implementation of shared-use streets should be an ongoing process of assessment and refinement. Questions such as the following should be asked on a periodic basis. Are the streets more or less safe? Are more or fewer people walking? What are the community reactions? As Langley implements shared-use streets it is hoped that the success of shared space projects in Europe can be replicated in this American setting and that lessons from Langley can serve as a model for other American communities.

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