

Alternative Transportation Modes and Livability



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Livability Principles

- Provide more transportation choices.
- Promote equitable, affordable housing.
- Enhance economic competitiveness.
- Support existing communities.
- Coordinate and leverage federal policies and investment.
- Value communities and neighborhoods.



Designing for Alternative Modes

Highway and Street Facilities

- Complete Streets
- Road Diets
- Bicycle Facilities
- Pedestrian Facilities
- Bridges
- Federal Highway Programs

Complete Streets

What are complete streets?

- Complete streets are **designed and operated to enable safe access for all users.**
- Pedestrians, bicyclists, motorists, and transit riders of all ages and abilities may move safely along and across a complete street.

What's Wrong with these Pictures?

Bus to the Airport



Transit Access



Is this a Complete Street?



Is this a Complete Street?

Charlotte NC, from www.completestreets.org/



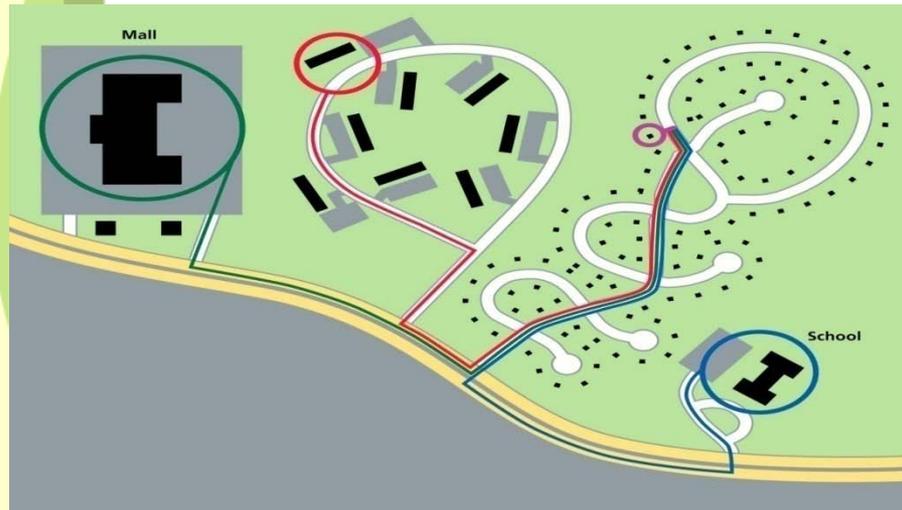
Complete Streets: Connectivity

From Virginia DOT Secondary Street Acceptance Requirements

www.virginiadot.org/projects/ssar/default.asp

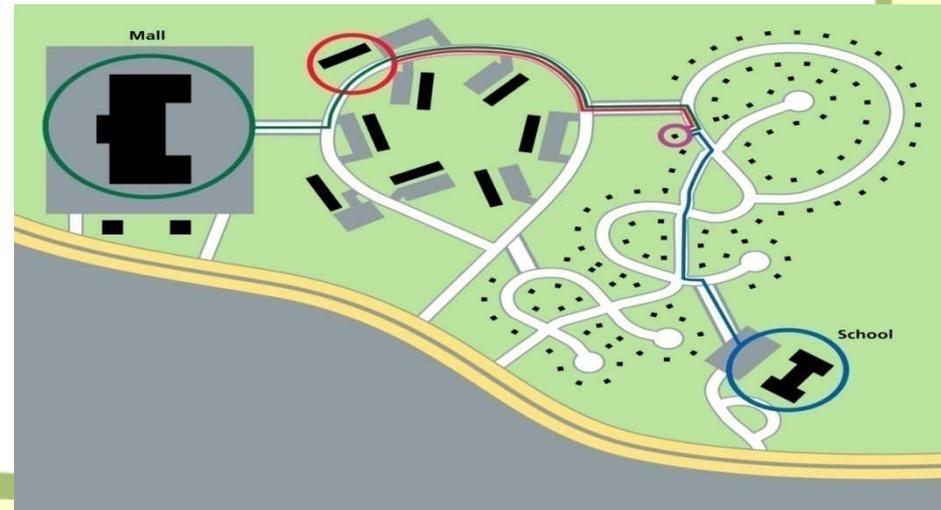
Cul-de-sac pattern

Any local trip requires drivers to use the major highway to get to their destinations.



Interconnected pattern

With connections, trips would not need to use the highway.



Complete Streets: Connectivity

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Cul-de-sac pattern

- What can be connected?



Interconnected pattern

- Connectivity Index



Complete Streets

- Improve safety.
- Offer transportation choice.
- Promote “livable” communities.
- Allow transportation connectivity.
- Reduce short distance motor vehicle trips:
 - Save fuel;
 - Reduce emissions;
 - Free up highway capacity for long distance trips.

Road Diets

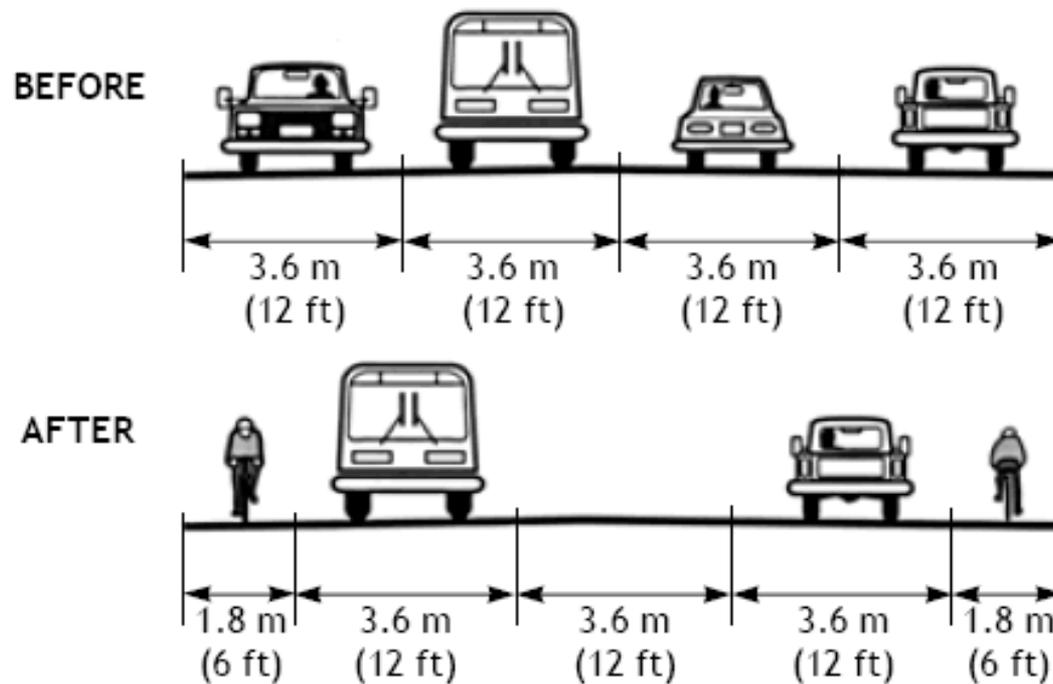
- Concept: Reduce lanes to improve traffic flow.
- Concept: Design from right-of-way line toward the center, not from the centerline out.

Broadway Road Diet



Road Diet

Convert 4-lane undivided to 3-lane.



Road Diet

From FHWA's *A Resident's Guide for Creating Safe and Walkable Communities*, Resource Sheet 7:
Engineering Solutions to Improve Pedestrian Safety

Before



After

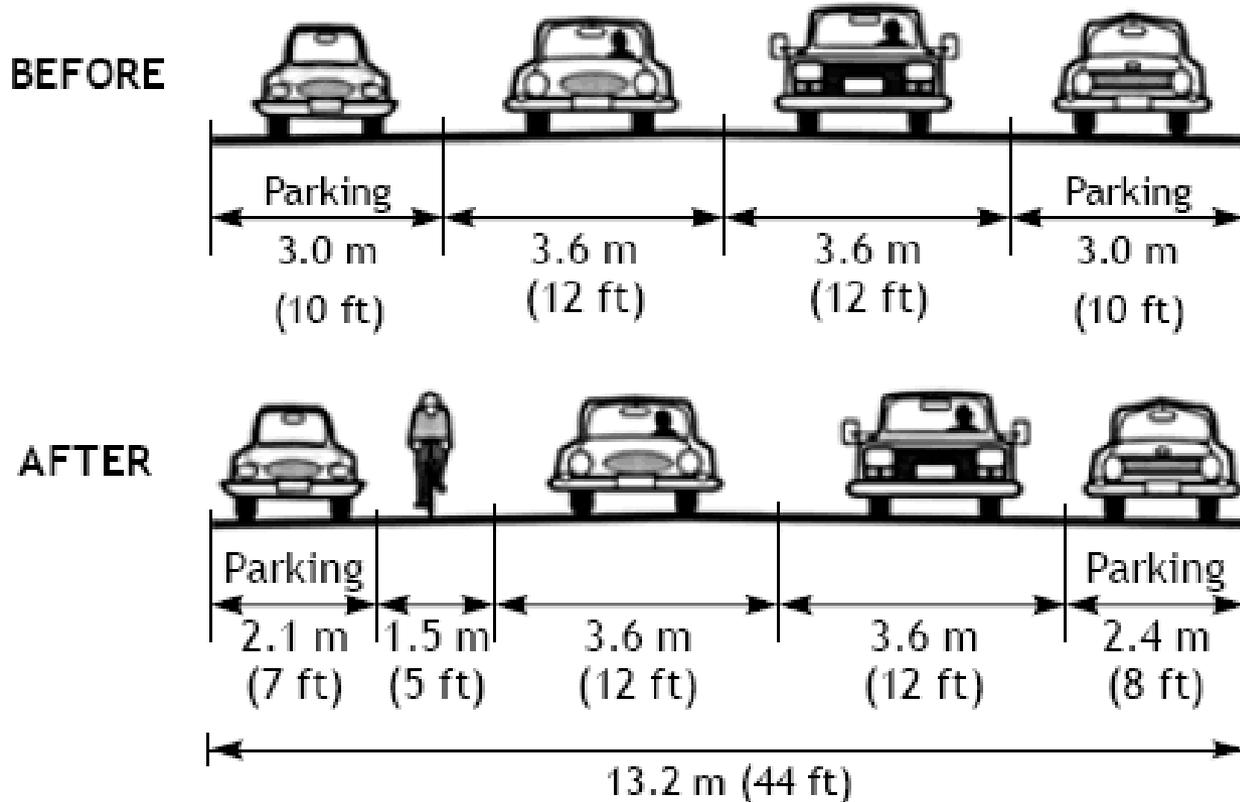


Road Diet Examples from National Complete Streets Coalition: www.completestreets.org



Road Diet

On-Street Parking: Reduce Lane Width.



High Street



Euclid Avenue



Road Diet Examples from National Complete Streets Coalition: www.completestreets.org



Road Diet Examples from National Complete Streets Coalition: www.completestreets.org



On-Road Bicycle Facilities

- What are the Standards?
- National Highway System: Use AASHTO.
 - *AASHTO Guide for the Development of Bicycle Facilities*
 - The 2010 *Guide* is under final review.
- Don't use only minimum design standards.

Bicycle Facilities

Shared Lanes

- Generally on lower volume roads.
- Wide outside curb lanes.
- Often enhanced with “Bike Route” signs.
- Bicyclists may need to “take the lane” to avoid debris, potholes, bumps, etc.
- Need to maintain smooth pavement.
- Need bicycle-safe grates.

Bicycle Facilities

Highway Shoulders

- Allow motor vehicles and bicycles to coexist.
- Shoulders wider than 6 feet usually can handle bicyclists: prefer 8 or 10 feet on busier highways.

Bicycle Facilities

Bicycle Lanes: On-street lane for bicyclists.

- *Usually* same direction.



Bicycle Facilities

Bicycle Lanes

- Sometimes left side.
- Sometimes contraflow.



Bicycle Facilities

- Intersections need special treatments.



Bicycle Amenities

- Bike racks on buses
- Bike racks on trains
- Bike parking for transit
- Public bike parking



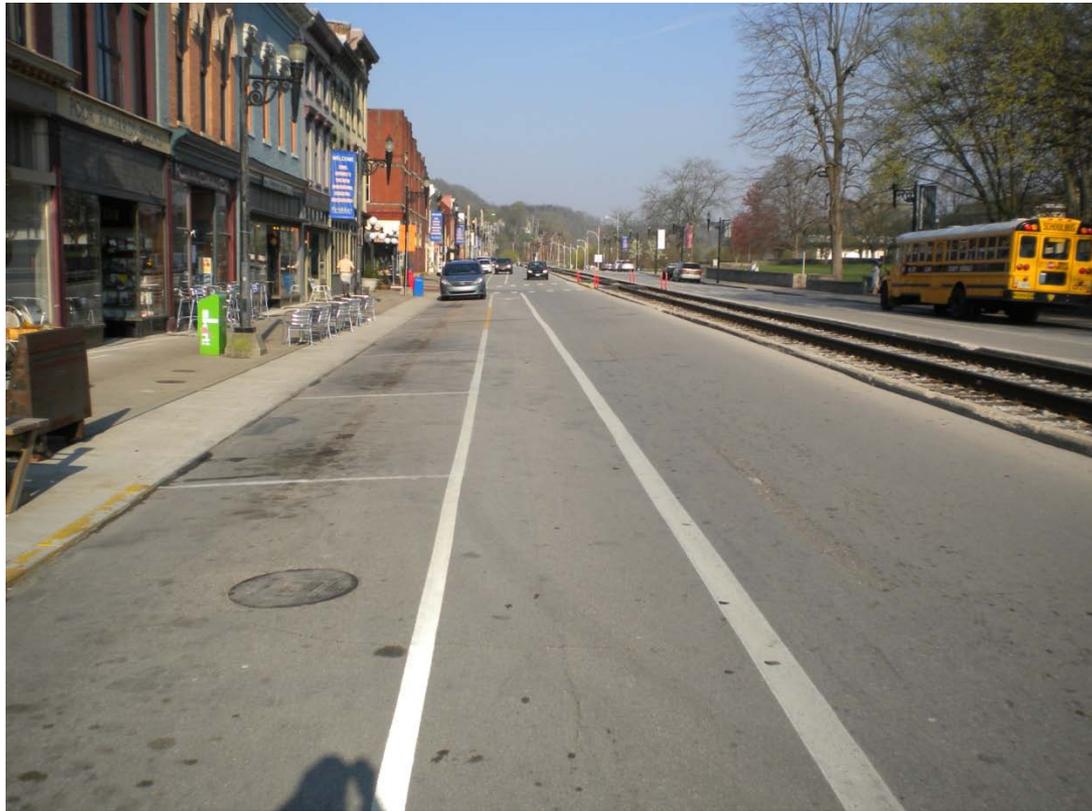
Haarlem Train Station



Pedestrian Facilities



Broadway Road Diet



Pedestrian Amenities

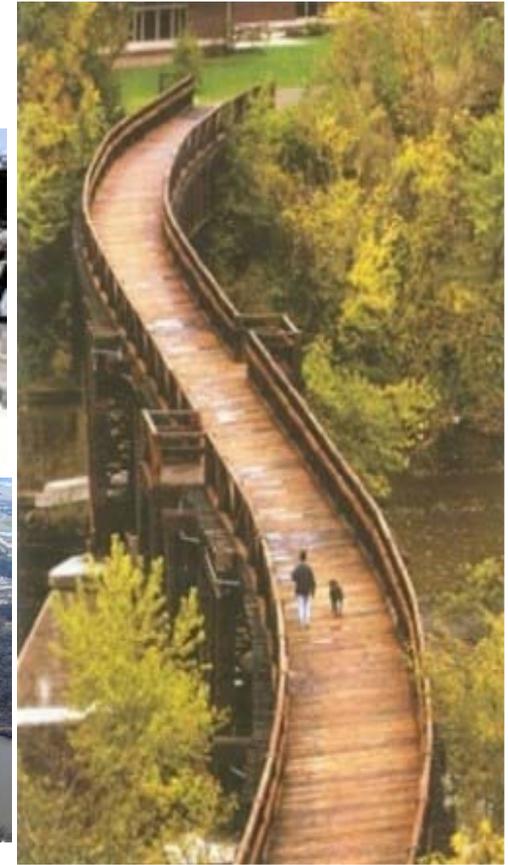
Eligible: Facilities related to transportation.

- Benches
- Bus shelters
- Trees
- Water
- Restrooms
- Trailside and trailhead facilities.
- **Lighting: Don't overdo! See www.darksky.org.**



Bridges

- Bridges: Essential Links.



Bridges

- DOT Policy: DOT encourages bicycle and pedestrian accommodation on bridge projects including facilities on limited-access bridges with connections to streets or paths.



Highway Bridges

- Design bridges for all potential users.
- Design highway bridges to accommodate emergency breakdowns.
- Consider possibilities for nonmotorized users at both ends: are there possible connections to local streets or paths?

Bridge Blocked to Pedestrians



Historic Pedestrian Bridge

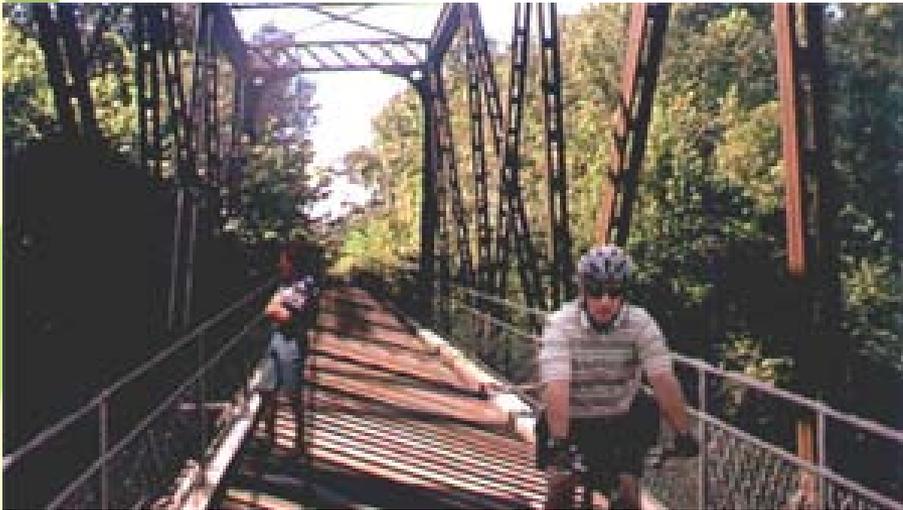


Nearest Pedestrian Crossing

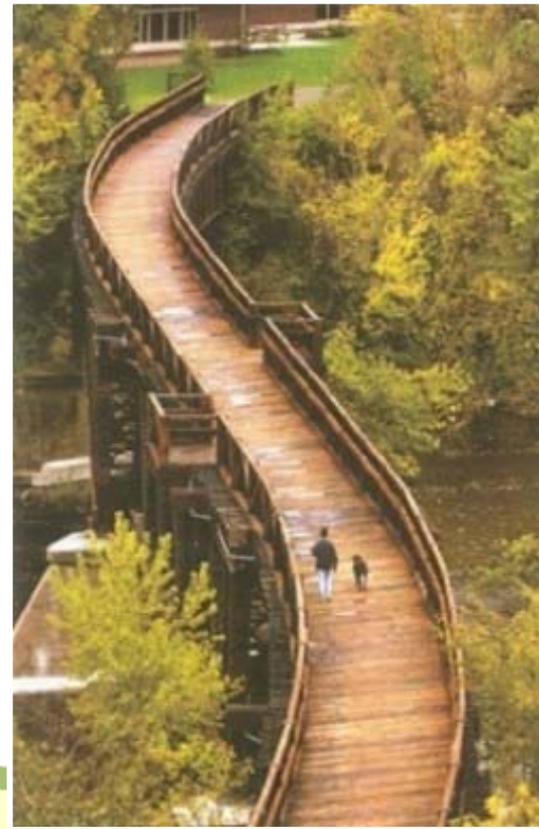


Old Railroad Bridges

Osage Prairie Trail
Tulsa, OK



Soo Line "S" Bridge
Eau Claire WI





Historic Pedestrian Bridge



Kentucky River View Park



Tunnels and Underpasses

- Design for the tallest likely user:
 - Maintenance vehicles?
 - Equestrians?



Legacy Trail and I-75



Legacy Trail



Legacy Trail ?



Tunnels and Underpasses

- Design for Perception of Security
 - Good visibility through the underpass
 - Lighting if needed.



Traffic Control Devices

- The *Manual on Uniform Traffic Control Devices* applies to nonmotorized transportation facilities:
- <http://mutcd.fhwa.dot.gov/>
- See MUTCD [Part 9 - Traffic Control for Bicycle Facilities](#) (1.25MB)
- Avoid motorist and bicyclist confusion.
- MUTCD has bicyclist guide signs.

Maintenance and Operations

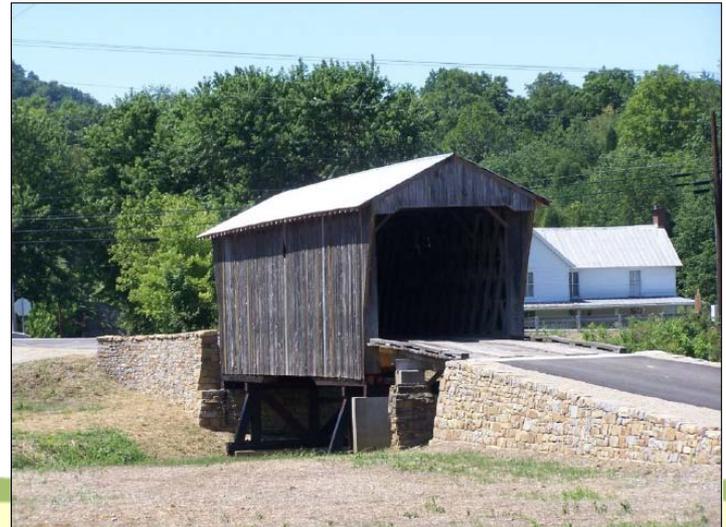
- If it is transportation, it should be:
 - Open for use just like local streets.
 - Open with no restricted hours of operation.
 - Open with no closures except for rare events (similar to local streets).
 - Maintained for use just like local streets.
 - YES, this includes snow and debris removal.

Funding Opportunities

- Transportation Enhancements
- Safe Routes to School
- Congestion Mitigation and Air Quality
- Scenic Byways Program
- Transportation Community and System Preservation

Transportation Enhancements

- Transportation-related activities designed to strengthen the cultural, aesthetic, historic and environmental aspects of our transportation infrastructure.



SRTS Categories

- Sidewalk Improvements
- Speed Reduction
- Bicycle and Pedestrian Crossings
- On/Off Street B/P Facilities
- Bicycle Parking
- Education and Outreach Activities

CMAQ Categories

- I/M and Transportation Control Measures
- Pedestrian and Bicycle Programs
- Shared Ride
- Traffic Flow Improvements
- Transit
- Demand Management

Scenic Byways

- Bicycle and Pedestrian Facilities
- Rest Areas
- Turnouts
- Highway Shoulder Improvements
- Passing Lanes
- Overlooks
- Interpretive Facilities

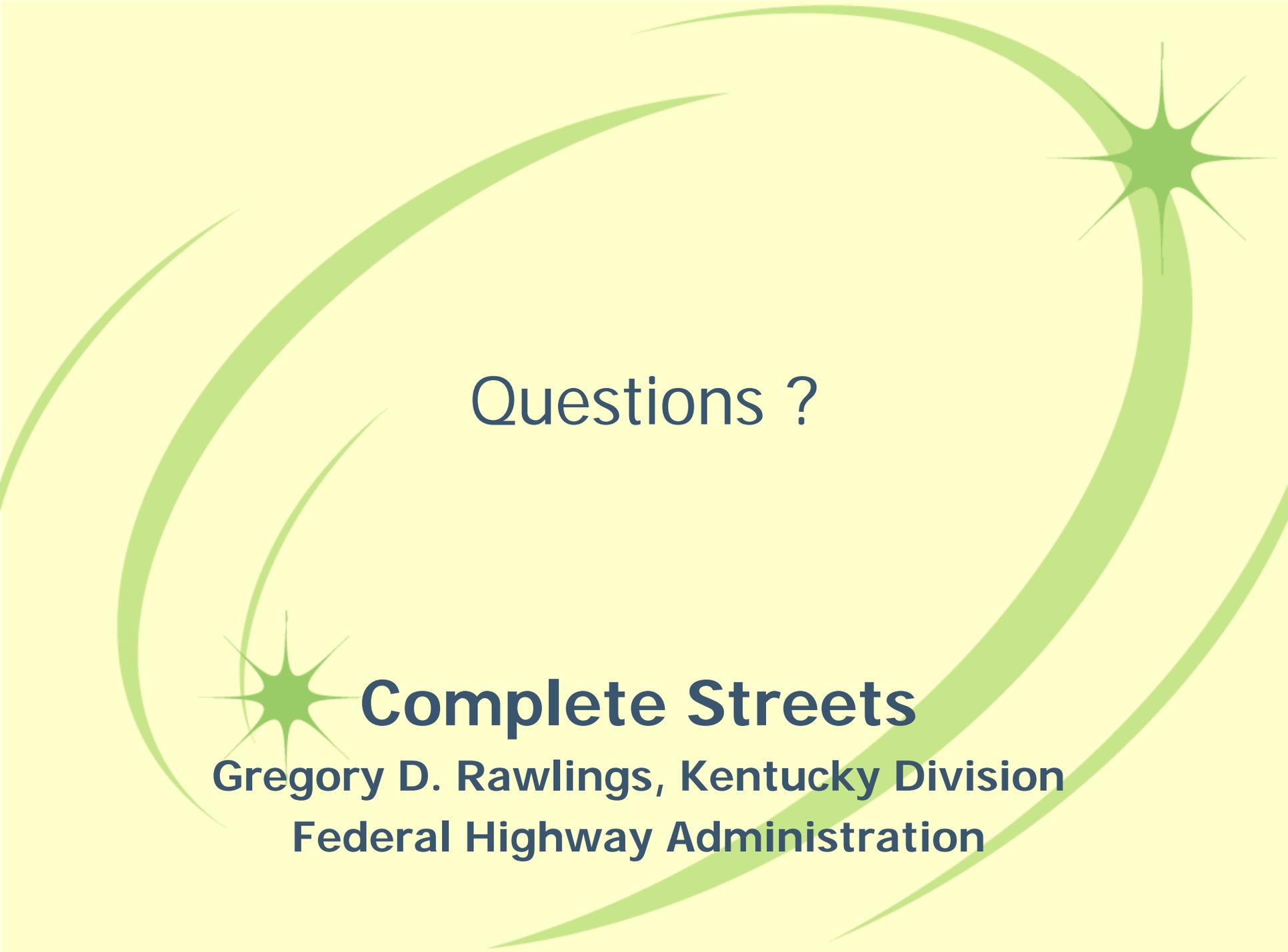
Transportation Community and System Preservation

- Preserve Green Space
- Ease Traffic Congestion
- Restore a Sense of Community
- Neighborhood Collaboration
- Economic competitiveness

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Questions ?

Complete Streets

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