Implementation & Equity 201:

The Path Forward to Complete Streets

Creating Value: Assessing the Return on Investment in Complete Streets

Webinar begins at 1PM EDT

Smart Growth America
Improving lives by improving communities

National Complete Streets Coalition

Creating Value: Assessing the Return on Investment in Complete Streets

March 23, 2017

Smart Growth America
Improving lives by improving communities

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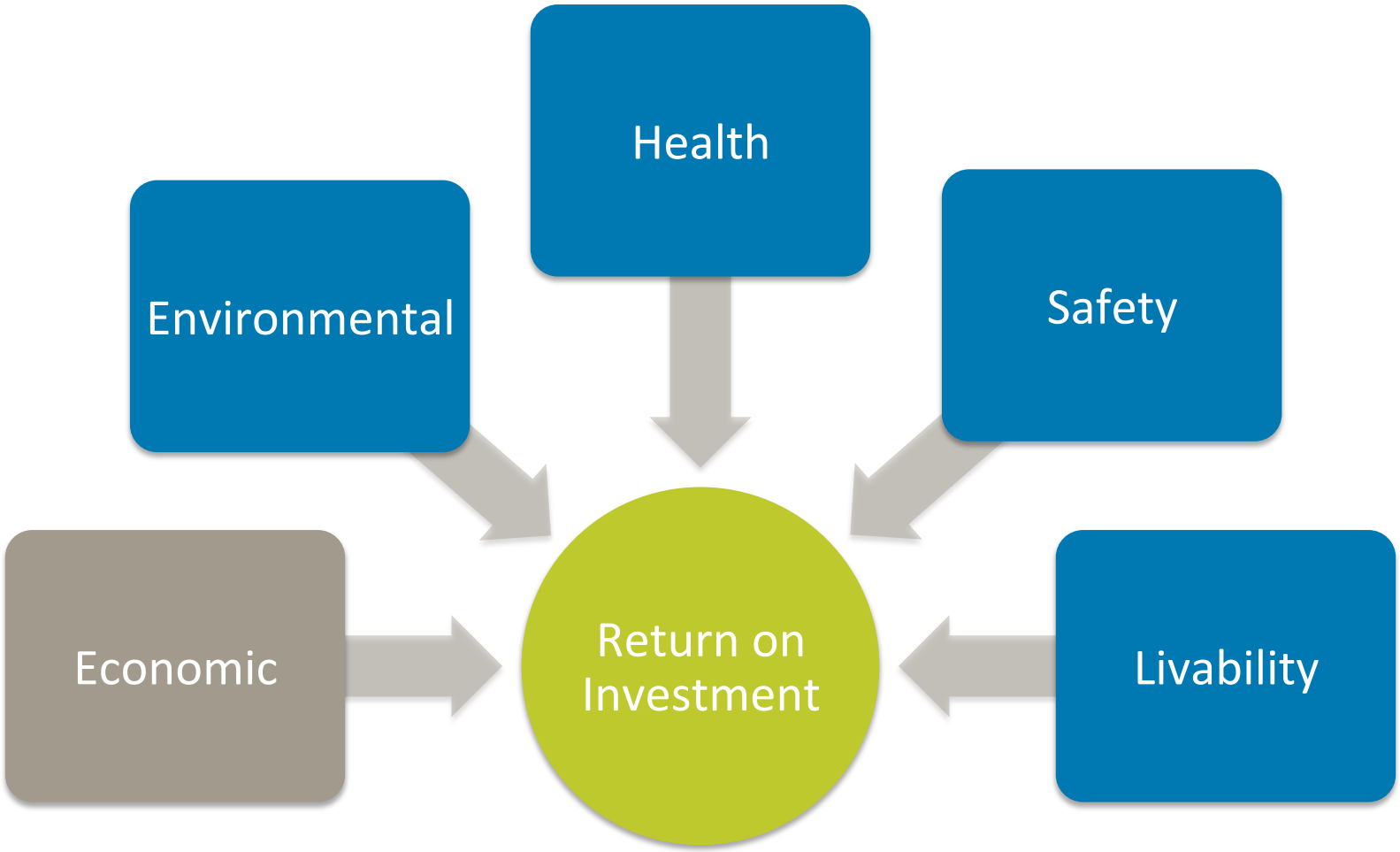
Debra Alvarez

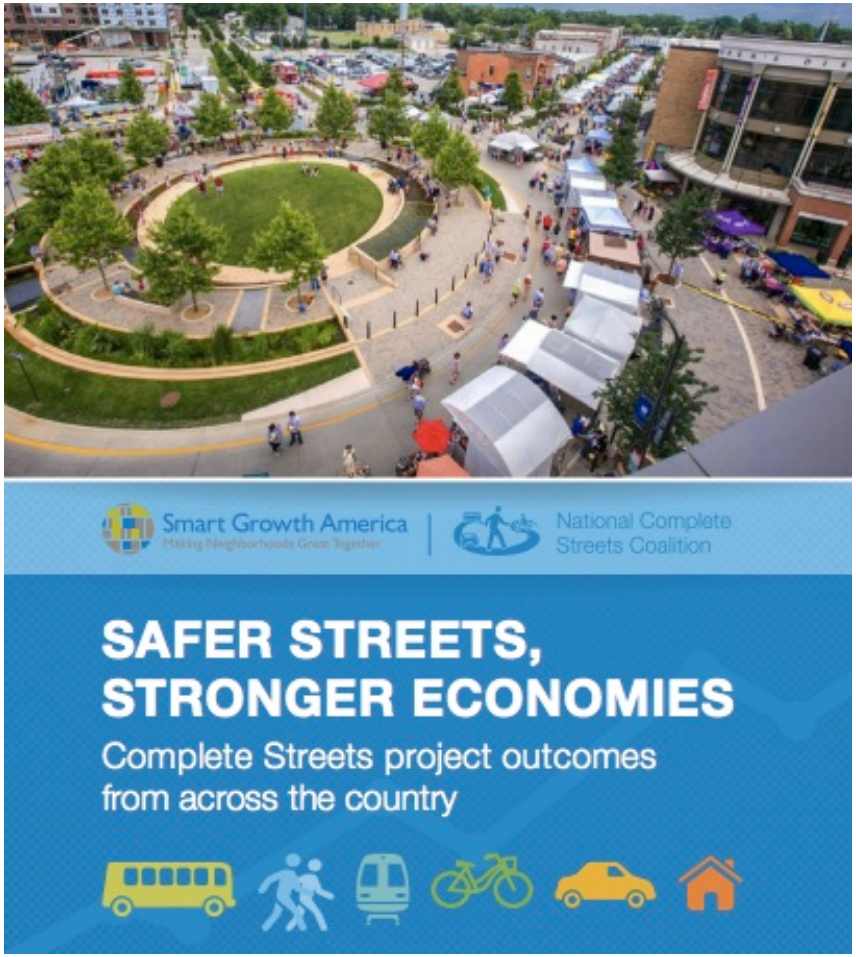
Executive Committee Vice Chair
@CompleteStreets

Senior Legislative Representative
@AARPLivable

Return on Investment in Complete Streets

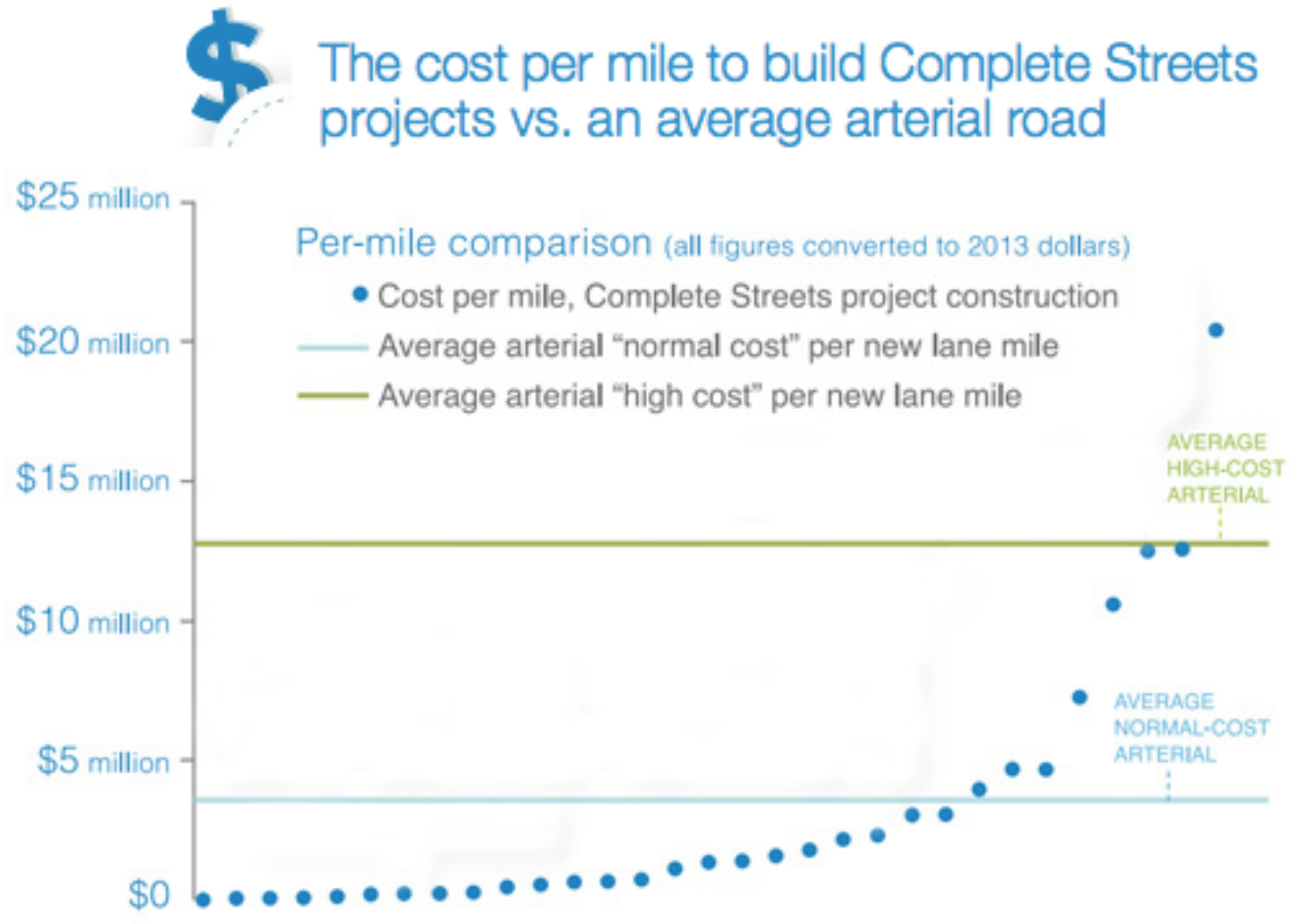


Complete Streets: high value



- Collision & injury costs
- Employment levels
- Property values
- Private sector investment
- Net new businesses

Complete Streets: low cost



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Scott Lane

Senior Community Planner

@Stantec

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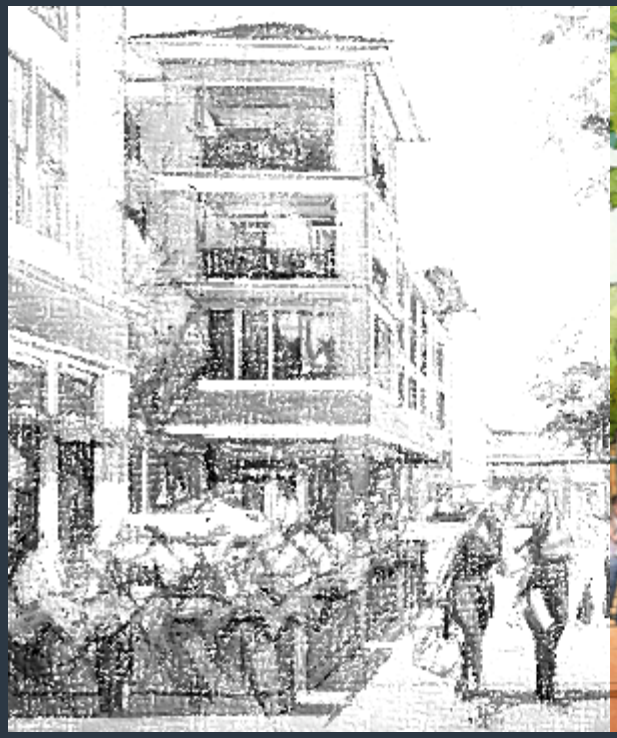
CREATING VALUE

Assessing the Return on Investment in Complete Streets



Zanetta Illustration

National Complete Streets Coalition / Smart Growth America

Streets are a vital part of livable, attractive communities.

Everyone, regardless of age, ability, income, race, or ethnicity, ought to have safe, comfortable, and convenient access to community destinations and public places– whether walking, driving, bicycling, or taking public transportation.

National Complete Streets Coalition / Smart Growth America

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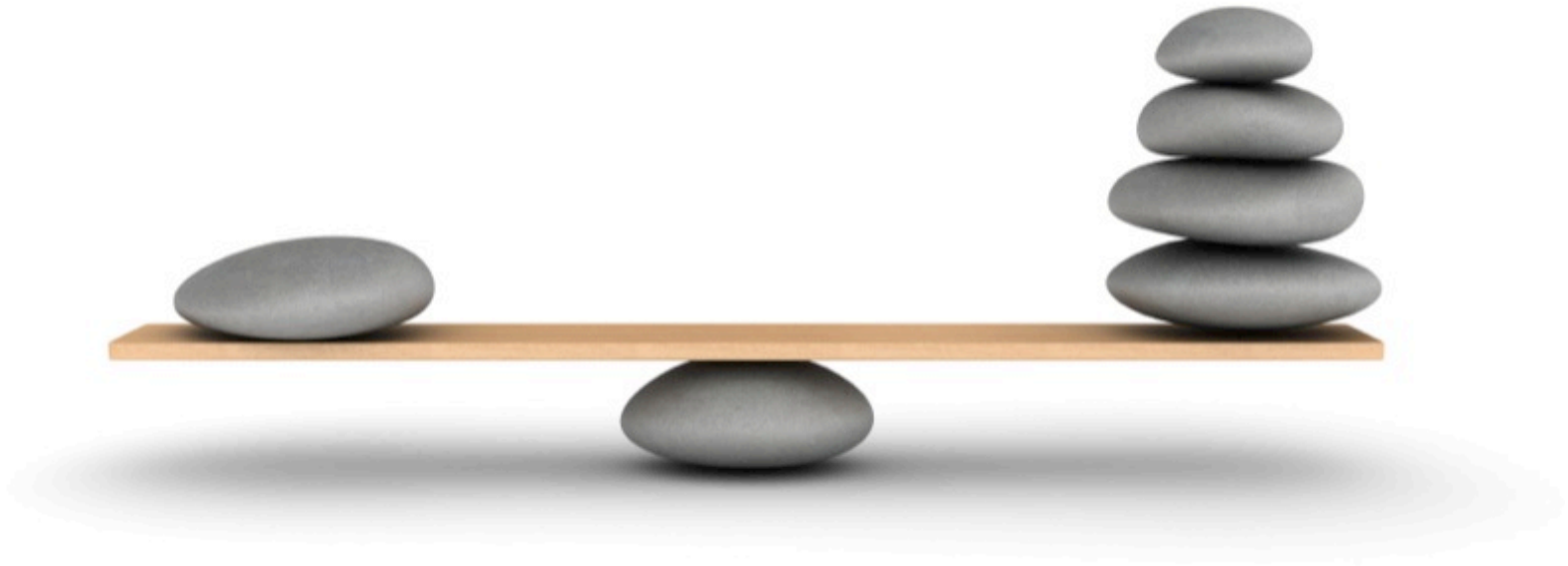
A Return to Community

WHY ECONOMICS IS IMPORTANT TO COMPLETE STREETS

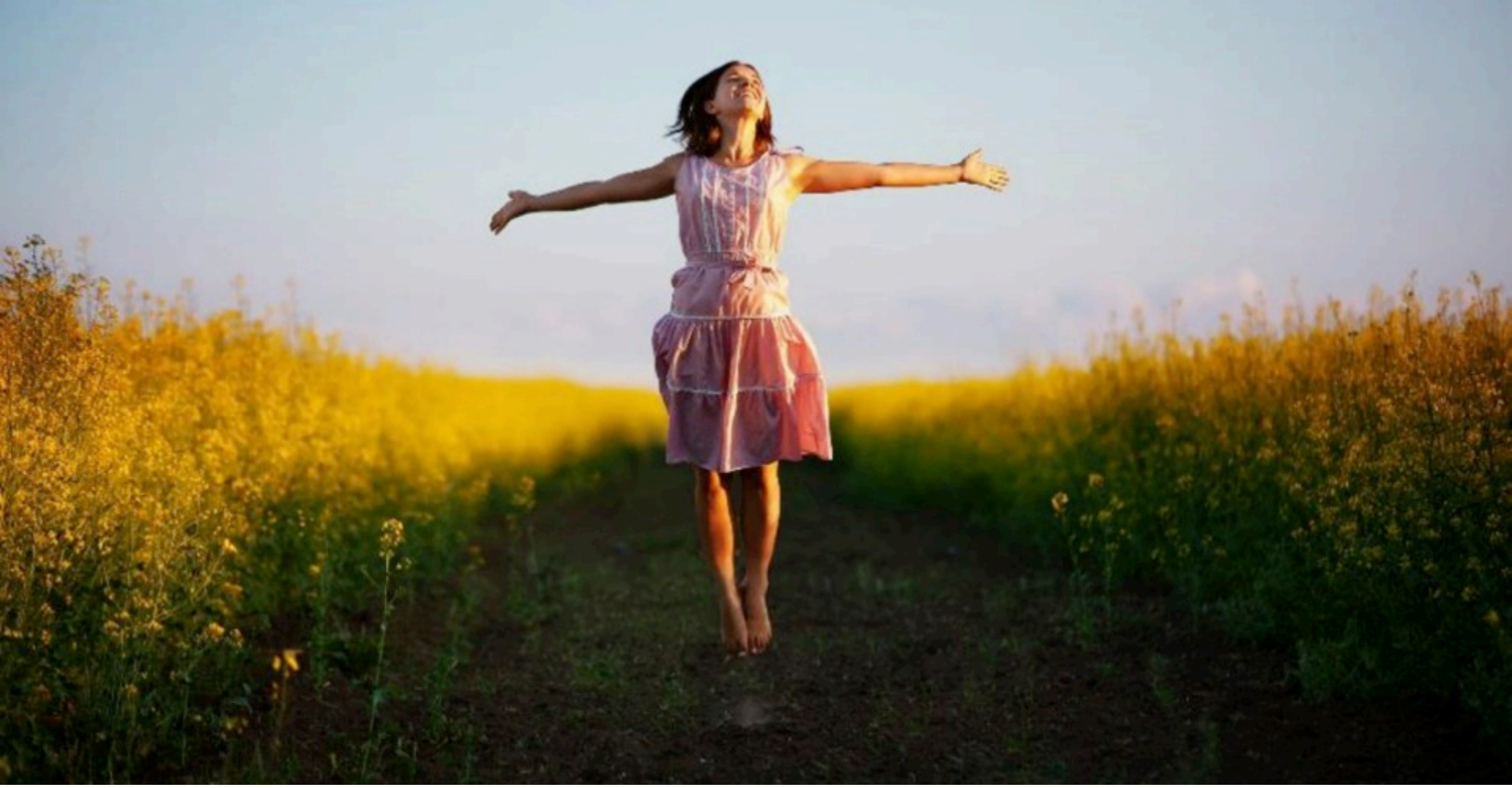


It helps level the playing field with competing issues.
It helps bring more diverse perspectives into what communities value.
It brings definition to what we mean when we talk about quality of life.
It may even help bring more financial support to a proposed project.

J. Scott Lane, AICP, CPTED

Stantec

- Planner
- Urban Design, Esp. Transportation & Land Use
- Corridor and Sub-Area Studies
- Long-Range Plans
- League of American Bicyclists Certified Master Instructor (#3102)
- Crime Prevention through Environmental Design
- Returns on Investment and Economic Benefits from Projects, Including some Grant Recipients
  - Transit, Rail and Rail Stations
  - Roadways in Towns from 60 people to 6,000,000
  - Trails and Greenways



What economics is all about

The basics of Why

Mea Culpa

WHAT WE DO OVER & OVER AGAIN

Every project has to involve people, places, and issues. But none of them belong to the staff or consultants. We tend to repeat two mistakes.

1 IF YOU ONLY HAVE A HAMMER, EVERYTHING LOOKS LIKE A NAIL. But places vary, people have different issues, and their objectives are often only tangentially related to our scope of work.

2 A FAILURE TO CONNECT THE DOTS. Our work influences a lot in the community, and it can do a lot of good. Or not. The right people and the right tools are critical.

Who's Complete?

Changing Over Time

Pre-1950's: Accessibility
1960's: Regional Mobility
1980's: Urban (Local) Mobility
2000's: Satisfying Multimodal Users
2020's: Sense of Place

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Changing Over Time

Pre-1950's: Accessibility
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PERFORMANCE & R.O.I. & SAFETY

GOING BEYOND LEVEL-OF-SERVICE TO CREATE PLACE

PERFORMANCE

Understanding how performance varies by community, and how to get it on the (level) playing field.

SECURITY

Completing a street does little good if it isn't safe to walk or ride on it. How good design can help. This one is on many people's minds today.

RETURN ON INVESTMENT

Maslow was right. It's about needs first, wants second. Creating better places means better opportunity in many cases.

Economics Isn't Dismal* and It Isn't Only about Money

- Adam Smith ("Invisible-Hand Adam" to his friends) is the most famous economist in history, right?
- Actually, he was an 18th Century Moral Philosopher – Not an Economist*
- He said that morality is hardwired into us – we feel some sadness when others are sad (or happy, etc.).* He was angered by "monopolists" and others who tried to keep wages low and prices high.*

If you sport a wig you should at least end up with a better hairline.

*usually

Economics (for Me) Is…

…just a way of thinking about the world and why people do what they do.
…not about money – money just happens to be the vehicle that carries around wishes, values, wants, and needs inside it.
…a way of helping make some hard decisions.
…not the only thing anyone should use to make almost any decision. (Why that is true is partially explained on the next slide.)

The island of Yap, where people were historically punished for stealing money by piling more money on top of them (not really).

How Much does the Ball Cost???

Junior needs a new baseball bat and a baseball to start his lucrative career in professional sports.

Together, the bat and the ball cost $1.10; the bat costs $1 more than the ball. How much does the ball cost?

A. 5 cents
B. 10 cents
C. 15 cents
D. 25 cents
E. Free Baseballs!

People aren't Rational

- FRAMING Context matters. A lot.
- LOSS AVERSION Finding a $100 bill and losing one are valued differently. To you.
- PROSPECT THEORY Good News: Someone is going to win the lottery. Bad News: It won't be you.
- FUTURE DISCOUNTING You want cheesecake and *Fast & Furious #22* now; the gym and *Citizen Kane* next week.
- INFORMATION ISN'T PERFECT Even worse, you tend to ignore what you aren't expecting to see (selective inattention).

Behavioral Economics has made some of these terms popular. In one experiment on selective inattention, groups of people were asked to watch a video to count the number of times that a group of people passed a basketball to each other; 2/3rds of them never noticed the person in the gorilla suit walking across the floor.

It was Bad

FOR A LOT OF PLACES IT STILL IS

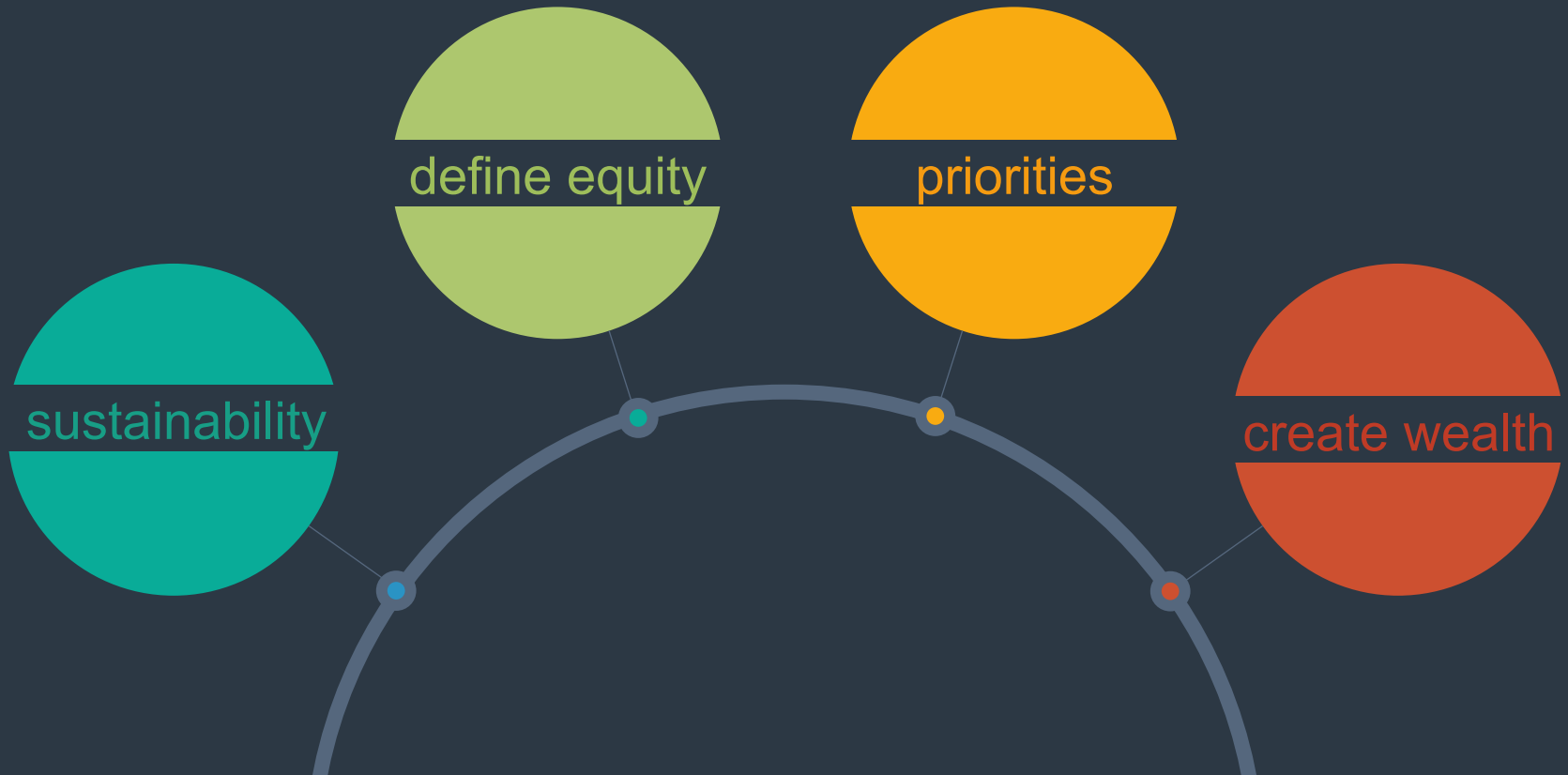
01 **PRIVATE INVESTMENT**
Non-residential investment still down by 20% compared to pre-2009 levels

02 **SMALL BUSINESSES TOOK A BEATING**
2006: 19,700 business filing for bankruptcy
2008: 43,500

03 **$900 BILLION**
Spent in 2009 alone by U.S. government to support crippled housing market

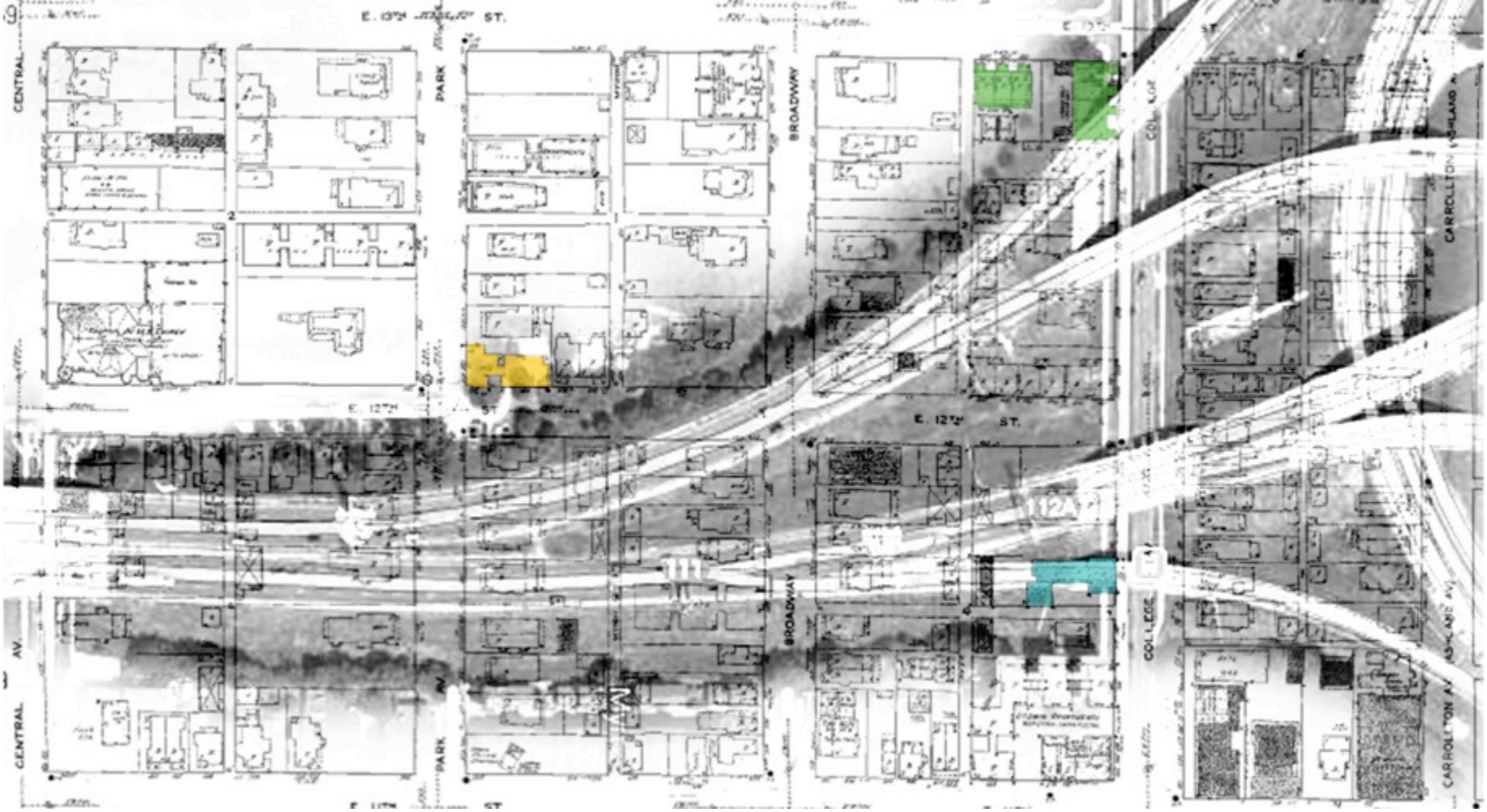
04 **PAIN SPREADING**
Education, relationships, and health all suffered

Why do Economic Analyses?



"Action expresses priorities."

— Mahatma Gandhi —



Map of I-65 layered on 1950 Sanborn map located in the Old Northside of Indianapolis, Indiana

Economics in Project Planning

The Basics of How

RETURN ON INVESTMENT

The Basics of Economic Analysis

DEFINE THE PROJECT
STEP 01

- Where?
- How Long/Big?
- Schedule?

BENEFIT CATEGORIES
STEP 02

- Travel Time
- Safety
- Job Access

How to quantify benefits?
STEP 03

- Comparable Cases
- "Shelf" Models
- Create Your Own

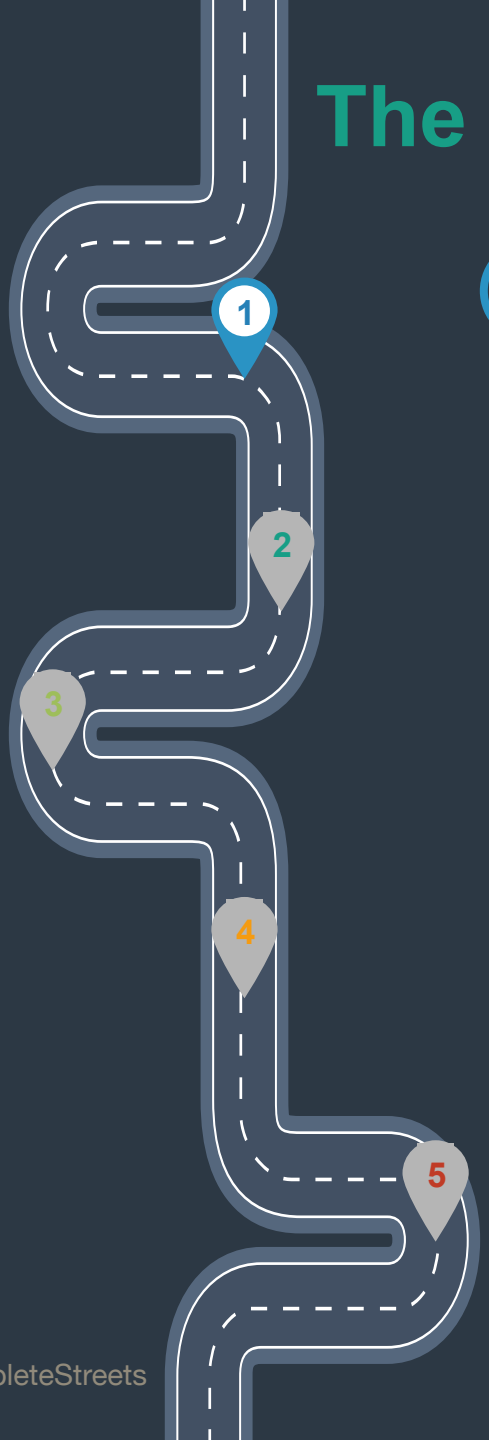
Quantify the costs
STEP 04

- Lifecycle
- Capital
- Who Pays How Much?

answer & refine
STEP 05

- Review (with client)
- Refine/Correct Inputs
- Reporting

The Basics of Economic Analysis

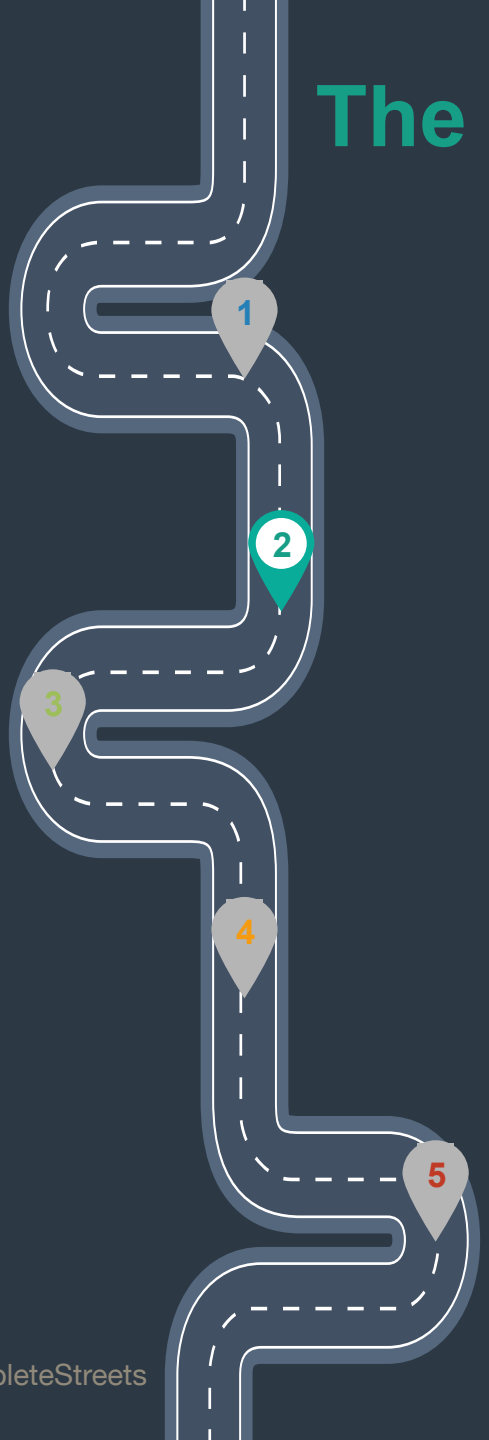


DEFINE THE PROJECT
STEP 01

- Where?
- How Long/Big?
- Schedule?

- Is the project located in an urban, suburban, or rural area?
- Bigger / Longer projects typically serve more people and accrue more benefits, but they always cost more.
- When would the project begin? When does construction end and allow people to use it?

The Basics of Economic Analysis

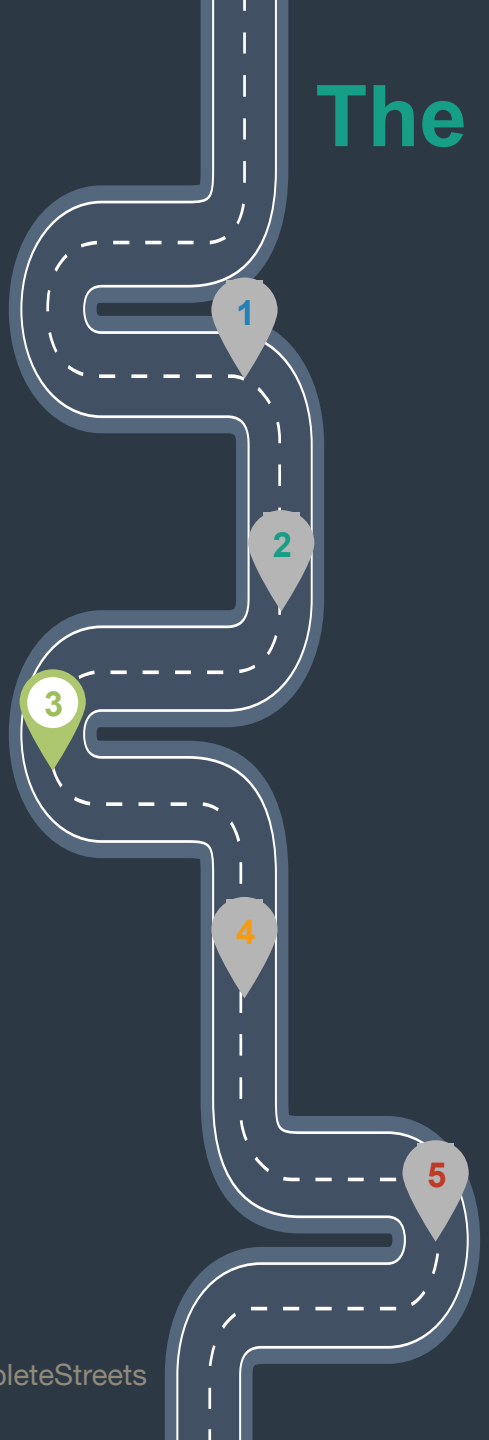


BENEFIT CATEGORIES
STEP 02

- Travel Time
- Safety
- Job Access

- Who is the project trying to serve?
- How do these people travel now?
- Are there transportation facilities or major destinations that are important to the community that this project would serve?
- Are there safety issues, concerns about stagnant local economies, or other issues that the project would help reduce or improve?

The Basics of Economic Analysis



How to quantify benefits?
STEP 03

- Comparable Cases
- "Shelf" Models
- Create Your Own

- Construction-Era Benefits: Jobs, wages, supplies used to construct (or support the people who construct) your project
  - Economic Input-Output Models
  - Fairly Straightforward
- After Construction: New / Expanded Businesses, Mode Shifts, Travel Time, Crash Reductions, Environmental Benefits, Economic Opportunity / Equity
  - Usually Not So Easy
  - Ground Truthing is Key

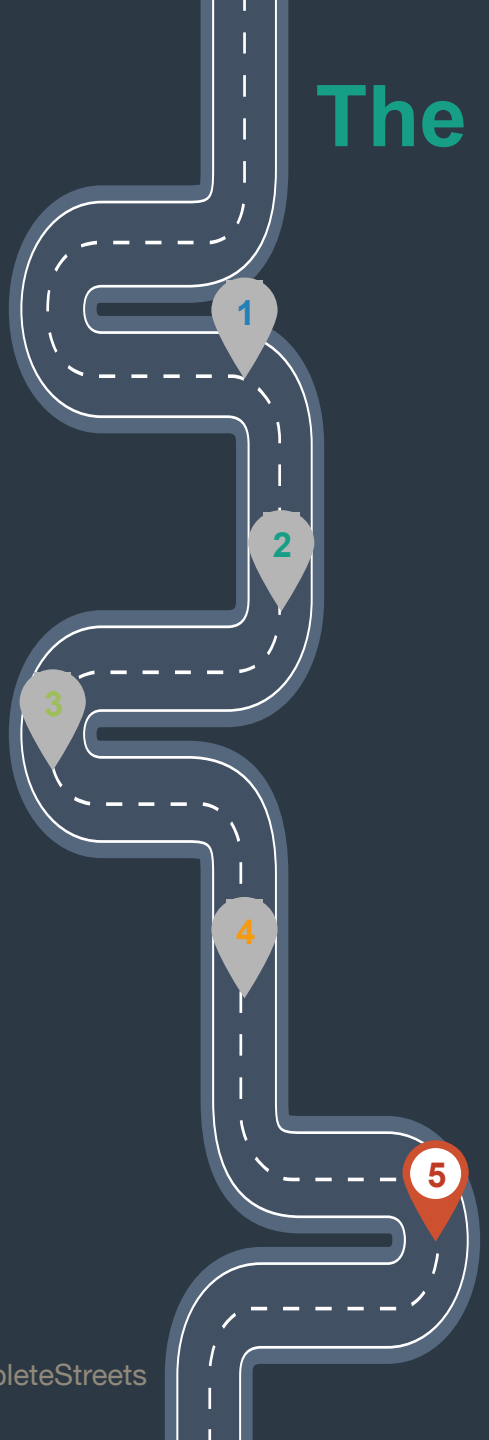
The Basics of Economic Analysis

Quantify the costs
STEP 04

- Lifecycle
- Capital
- Who Pays How Much?

- Capital Cost for Construction, right-of-way, engineering design
- Maintenance and Operations costs, preferably from a local source, can be harder to acquire
- With respect to grants – and probably every project sponsoring agency that ever existed – understanding who pays for what is important

The Basics of Economic Analysis



answer & refine
STEP 05

- Review (with client)
- Refine/Correct Inputs
- Reporting

- Review the results, not just with the client but local experts as well
- Refine and correct the inputs – we strive to have a third party check calculations, written summaries, and assumptions
- When reporting, remember: telling a *complete* story requires a conveyance of both quantitative and qualitative benefits

Not everything that can be counted counts. Not everything that counts can be counted.
- William Bruce Cameron

Case Study: Grand Avenue

Walk Down the Avenue

Making a more complete place

Commercial Land Use (%)	40%
Residential Land Use (%)	60%
Project Length (miles)	1.9
Daily Volume-to-Capacity (V/C)	78%
Design Completed So Far	15%

Key Stats:
Design: 2019
Construction: 2020 – 2022
Cost: $16.3 million ($2012)

Case Study: Grand Avenue

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Project Length (miles)	1.9
Daily Volume-to-Capacity (V/C)	78%
Design Completed So Far	15%

Key Stats:
Design: 2019
Construction: 2020 – 2022
Cost: $17.3 million ($2017)

More Grand Avenue

Not just a route for downtown commuters

Learning
Fewer advanced degrees than the surrounding area

Schools
Two public schools on route

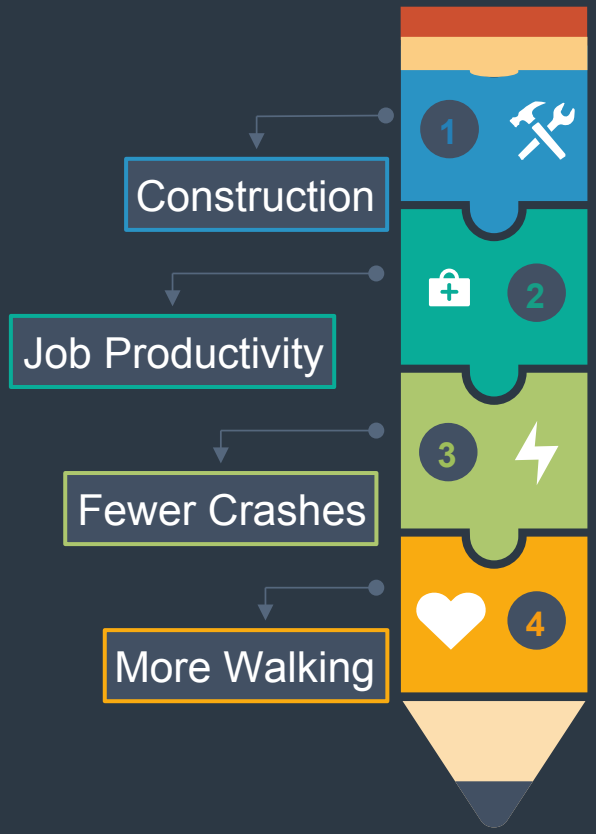
Workers
High jobless rate; Grand Ave links to job-training center

Place
Partially in a historic district; some businesses are faltering

Benefits:
Access to Jobs
More Walking/Biking
Reduce Crashes
Improve Transit Ridership

Benefit Calculations

FUN WITH NUMBERS



wages
temporary jobs, wages, tax benefits

jobs
access to training center, better jobs, higher-paying jobs

crash
reductions to injuries and delays

walk
health, transit ridership, pollution

How to quantify benefits?
STEP 03

Benefit Calculations

LET'S GET OUR GEEK ON

wages
temporary jobs, wages, tax benefits

models like IMPLAN, TREDIS, RIMSII; flat coefficients

wage differentials from different job types

labor
access to training center, more and higher-paying jobs

crash
reductions to injuries and delays

FHWA crash reduction studies; typical travel time (models, floating car studies)

health studies and typical walk rates in more walkable areas (8%-10%)

walk
health, transit ridership, pollution

How to quantify benefits?
STEP 03

Ground-Truthing

ADDING CREDIBILITY, CONFIDENCE, AND VALUE

Draw upon the knowledge of local experts to create bounds for results

FOCUS GROUPS

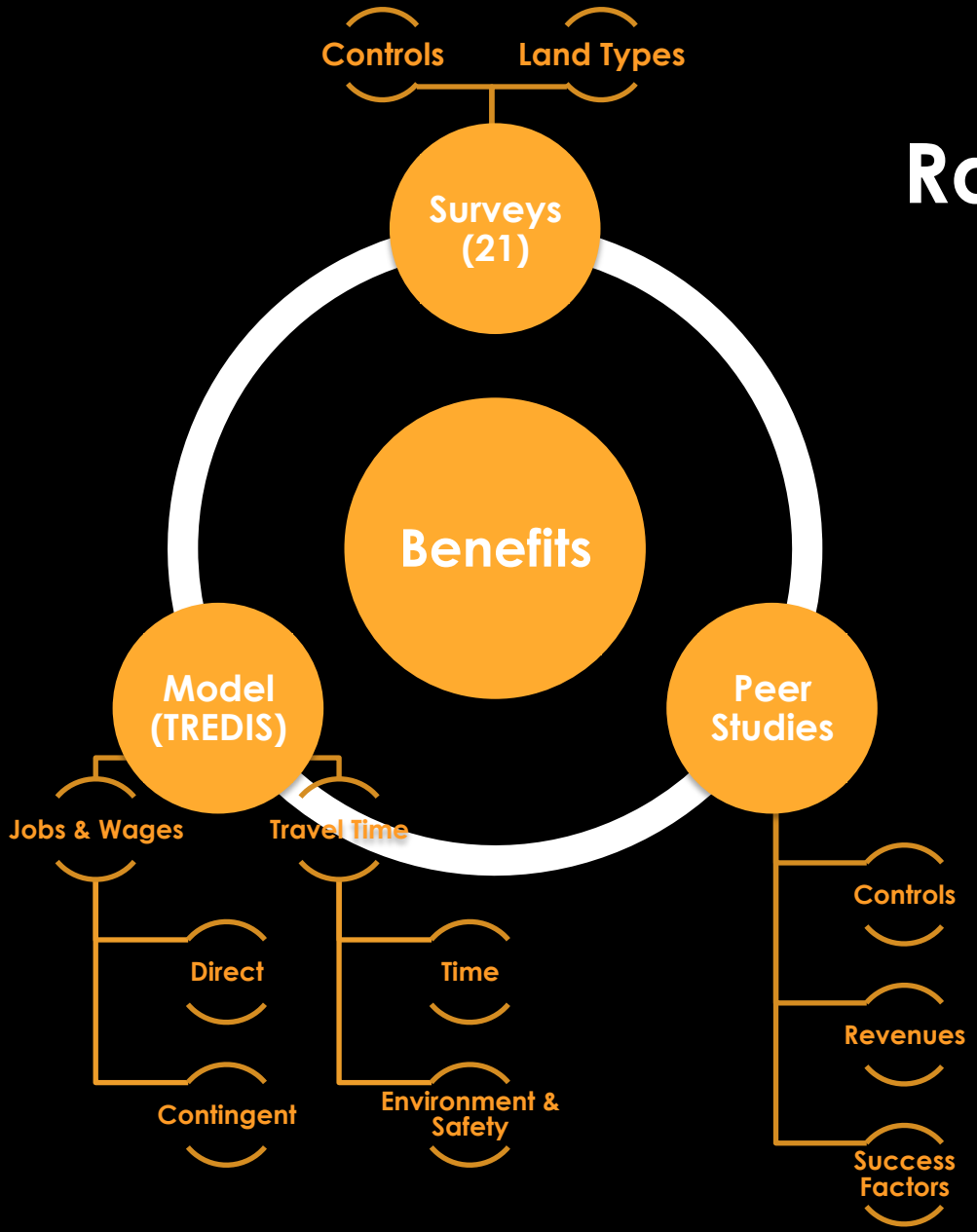
Check for similarities and differences; helps tell the story and clues to success

CASE STUDIES

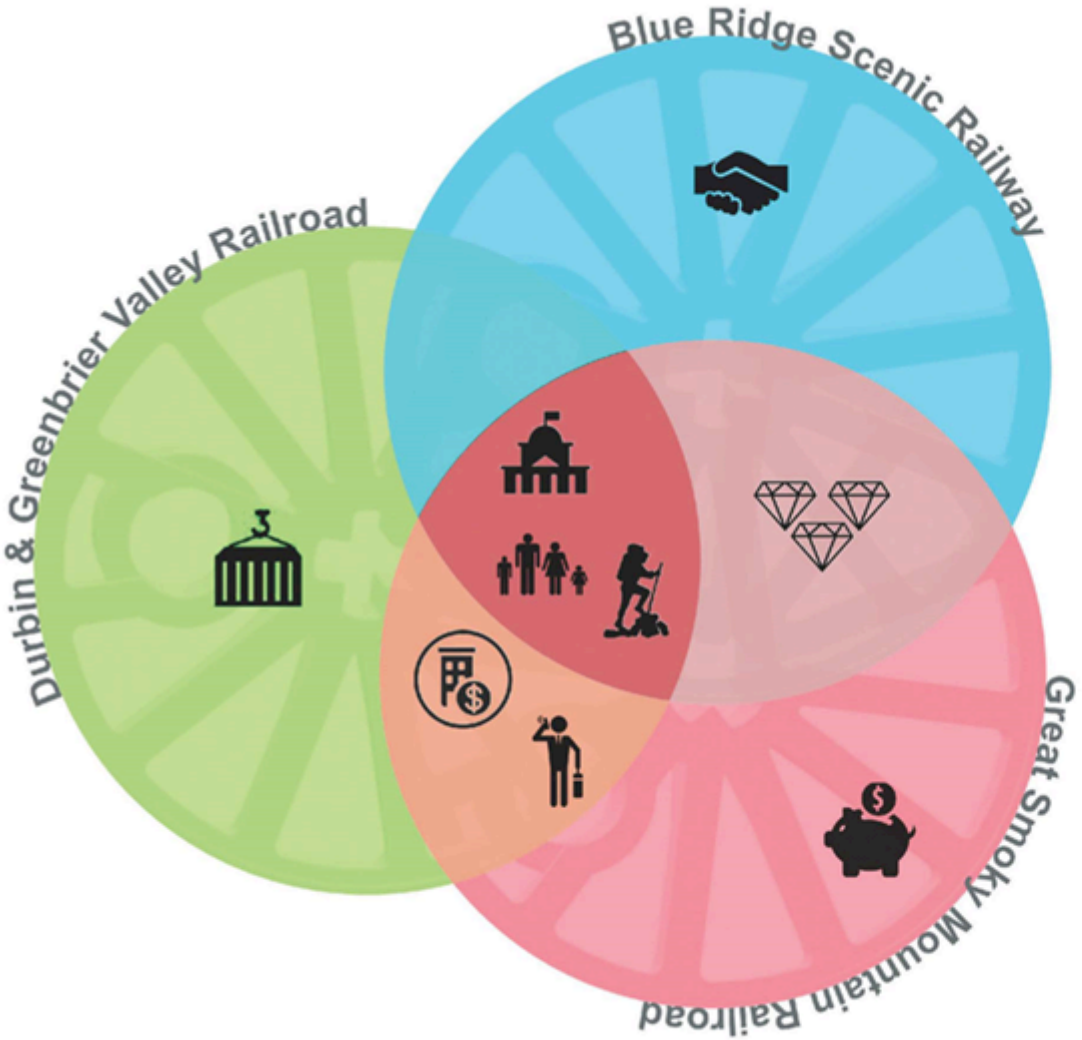
Don't stop at a number; talk about ways that improve outcomes

SUCCESSES

Benefit Assessment for Rail Reactivation



Summarizing Case Studies



VOLUNTEER FOCUS
Maintenance, management, marketing, and guides can be volunteer-based, helping offset operating costs

GOVERNMENT SUPPORT
Initial purchase of rolling stock and right-of-way, and ongoing tax credits help offset start-up & maintenance costs

HIGH AMENITY FOCUS
In-car dining, air conditioning, and themed rides targeted at higher income shoppers diversify the customer base

FREIGHT / SHIPPING
Rare, but valuable source of income in the case studies; may require additional staffing and facility requirements

TOURISM PARTNERSHIPS
Taking advantage of outdoor recreation, downtown tourism, and existing outreach tools leverage marketing funds

INNOVATIVE FINANCING
Partnering with museums, maintaining a business-friendly attitude, and leasing arrangements bring additional revenue

PRIVATE SECTOR SUPPORT
Shared parking with private lot owners can be critical, as can catering, outdoor service, and other partnerships

HIGH VALUE
Orienting travel packages to budget consumers and "day-trippers" helps to diversify and attract ridership

FAMILY FOCUS
Often value-conscious, families look for shorter trips, special packages with hotels, and targeted marketing efforts

Capital & Maintenance

Costs of the Project (aka, “the denominator”)

Capital Costs

- Construction
- Design, ROW
- Some models like labor, materials, etc.
- Local is Better

Maintenance Costs

- Repairs
- Operations (e.g., transit services)
- Mowing, clearing, etc. (trails)

value now

Key Input Description	Value
PROJECT DETAILS & COSTS	
Project Cost ($2016)	$14,290,000
Annualized Maintenance Cost ($2016)	$46,400
Length of Alberta Pkwy, Phase II (miles)	0.5
Construction Start Year	2018
Construction End Year	2019
First Year of Operation	2020
End Horizon Year of Project	2045
Est. Population within half-mile of Project, 2016	7,564
Population Growth per annum, with & without Proposed Project	0.94%
PROJECT BENEFITS	
Emissions-Related Benefits	
Rail Trips, 2016 (estimated)	12,509
Average Intercity Trip Length (miles)	474
Increase in ridership, without / with Project	2.7%
Dollars per person-hour ($2016)	$19.52
Amount of Time Spent Productively on a Train by Passengers	75%
Development and Redevelopment of Private Property (productivity)	
Current Property Values ($2016)	$242,410,800
Per Annum Increase in Property Values Without / With Project	0.94%
Health-Related Benefits	
GREATER NUMBER OF WALKERS	
Trips Reliant on Walking within 1/2-mile of Study Area, No-Build	378
Additional Walking Trips within 1/2-mile of Study Area, Build v. No-Build	8%
Additional Life Accrued to More Physical Activity (years)	1.27
Statistical Value of One Year of Life ($2016)	$117,497

READY FOR THE SHOW

1. Adjust for NPV (Net Present Value)
   At 7%, $1 now is $0.25 in 20 years
2. BCR = Revenues / Costs
3. Payback Period = How long it takes to get in the black
4. Summarize and be succinct
5. Show your work (sources)

answer & refine
STEP 05

Value		Notes + Sources
$14,290,000		*City of Tuscaloosa, AL engineering estimate*
$46,400		*Includes added maintenance for all project components. (David T.*
0.5		*Stantec Consulting Services Inc.*
2018		*Stantec Consulting Services Inc.*
2019		*Stantec Consulting Services Inc.*
2020		*Stantec Consulting Services Inc.*
2045		
7,564		*ESRI Business Analyst Online, Business Market Profile, 2015 popul*
0.94%	1.20%	*ESRI Business Analyst Online, Business Market Profile, 2010-2015*
		The degree to which passengers spend their time working, their fellow passengers is represented as a productivity in equivalent time spent in an automobile. Although not all t research conducted in the U.K. places this number at 78%; (75%) was used here to represent the greater number of r Changes created by increased passenger productivity over not included in the analysis; only figures used for rail rider used.)
12,509		*National Association of Railroad Passengers, 2008-2014 data extr*
474		*National Association of Railroad Passengers, 2014 data*
2.7%	3.4%	*Estimate based on differential in property value growth as surrog*
$19.52		*2016 TIGER BCA Guidance, Intercity Travel Value*
75%		*Lyons, G., Jain, J. and Holley, D. (n.d.) The use of travel time by rai*
		The redevelopment of the site that is expected to occur in
$242,410,800		*City of Tuscaloosa 2016 Property Tax Records*
0.94%	2.5%	*Estimated based on per annum population growth rate (cell B16)*
		More walking and biking that is encouraged by creating pe friendly communities translates directly to lower obesity r concerns. Studies performed on this subject vary widely, b car ownership-households near the Project (nearly 10% of car) will particularly benefit from these types of measures car usage and increased reliance on inter-city rail service emissions rates, and the TIGER guidance-driven benefits fi down mobile source emissions.
378		*Assuming that 9.8% of households without a car, estimated 2015*
8%		*Based on Elasticity of .08 from changes in density, diversity and de*
1.27		*Based on greater number of people walking at least one hour per*
$117,497		*2016 TIGER Guidance; Lewis, Kristen and Burd-Sharps, Sarah, Ame*

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STEP 05

Crossing the Wires

THE VERY BEST OF INTENTIONS

MESSING UP THE BASICS

This just involves pretty straightforward math, a bunch of spreadsheets, etc. What can possibly go wrong?

MESSING UP DETAILS

Know basic economics, models, transfer benefit exceptions, discount rate punishment

MONETIZING RESULTS

This can be hard. Sometimes just telling the qualitative story well (video interviews, surveys) is better then coughing up bad numbers.

COMMUNICATING RESULTS

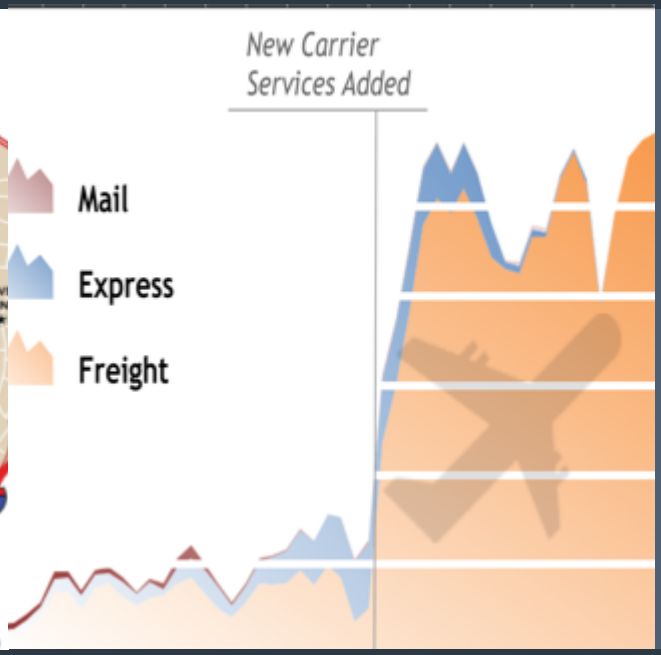
Pay attention to grant requirements, use infographics, do great chart design, and write it well, clearly, and briefly.

Art of the Chart

Don't Stumble at the Goal Line

Maps

Charts



Simple is Better

- ✓ High Data-to-Ink Ratio*
- ✓ Fewer Colors Generally
- ✓ Tables>Charts>Graphics
- ✓ A Great Map Needs Little or No Explanation
- ✓ May Need to Work in Black-and-White, not just Color

*Edward R. Tufte, *The Visual Display of Quantitative Information*, 2nd ed., 2013

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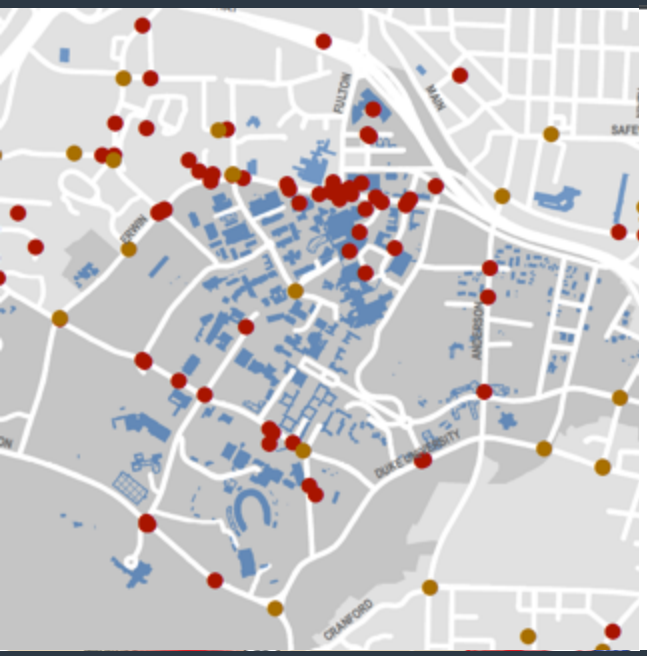

Charts

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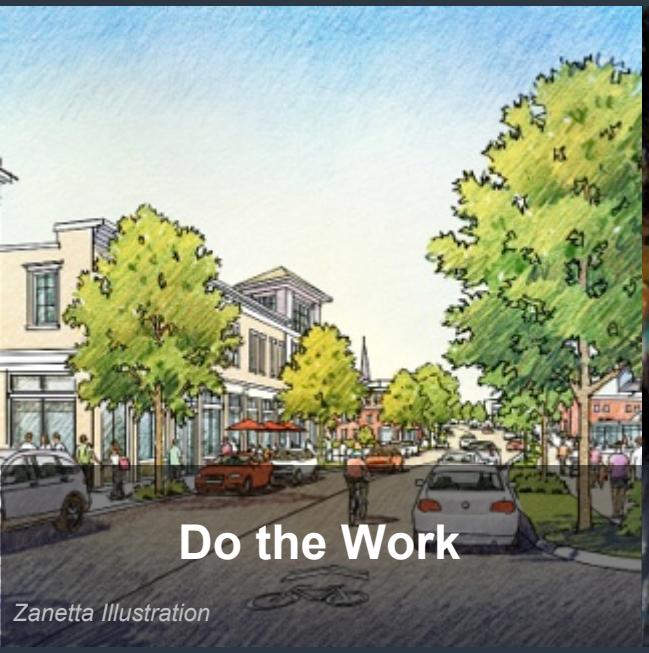
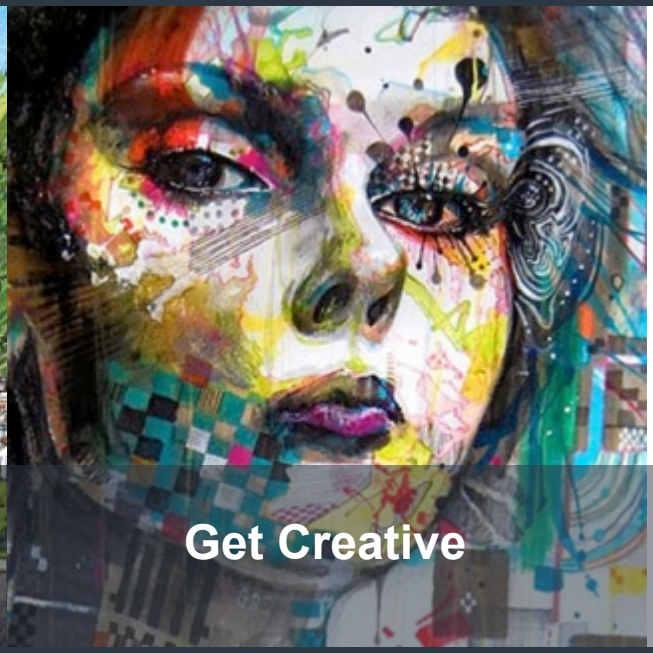
When Numbers Fail

TELLING THE WHOLE STORY



Do the Work

Zanetta Illustration



Get Creative

Document Support

How to Get Started

RESOURCES FOR GETTING ECONOMICS INTO YOUR PROJECT

BCA Homework
- American Economics Association
- FHWA, Quah, and (Many) Others
- Ask Questions

Data Sources (cite them)
- Go Local (chamber, past studies)
- Bureau of Labor Statistics
- Business Census (LEHD)
- Research Libraries (e.g., SCOPUS)
- ESRI Business Analyst Online
- Third-Party Data

Smart Growth America
Improving lives by improving communities

National Complete Streets Coalition

You have **Questions**
We have **Answers**

Call Us:
919.865.7387 | scott.lane@stantec.com
Stantec

THANK YOU!

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National Complete Streets Coalition

Questions?

Type your questions in
the ReadyTalk chat box

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National Complete Streets Coalition

Want to learn more?

Stay tuned for upcoming webinars

Implementation & Equity 201:

The Path Forward to Complete Streets

Integrating Complete Streets, Vision Zero, and Transportation Equity

1PM EDT on April 5, 2017

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Implementation & Equity 201:

The Path Forward to Complete Streets

Making the Most of Main Street: Complete Streets and Walkable Communities

1PM EDT on May 17, 2017

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