



**Draft Meeting Summary**  
**BROADWAY BOULEVARD CITIZENS PLANNING TASK FORCE**

May 21, 2013

5:30 p.m.

Child & Family Resources Angel Charity Building  
 2800 East Broadway Boulevard  
 Tucson, Arizona 85716

The Broadway Boulevard Citizens Planning Task Force meeting summaries provide a brief descriptive overview of the discussions, decisions and actions taken at the meetings. The summary and the audio recording of the meeting comprise the official minutes of the Broadway Boulevard Citizens Planning Task Force Meeting.

Meeting summaries and audio recordings of the meetings are available online at the City Clerk's web page at:

<http://cms3.tucsonaz.gov/clerks/boards?board=100>.

*Requests for CD copies of the audio recordings are taken by the City Clerk's Office at (520)791-4213.*

**MEETING RESULTS**

**1. Call to Order/Agenda Review/Announcements**

The meeting was called to order by City of Tucson Department of Transportation, Broadway Project Manager, Jenn Toothaker. A quorum was established and the agenda for the meeting was reviewed by Jenn Toothaker.

**Citizen Task Force Members**

| Present              |                 |  | Absent          |
|----------------------|-----------------|--|-----------------|
| Bob Belman           | Jon Howe        |  | Bruce Fairchild |
| Michael Butterbrodt  | Farhad Moghimi  |  |                 |
| Anthony R. DiGrazia  | Shirley Papuga  |  |                 |
| Steven Eddy          | Elizabeth Scott |  |                 |
| Mary Durham-Pflibsen | Diane Robles    |  |                 |
| Colby Henley         | Jamey Sumner    |  |                 |

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Following the Call to Order Project Manager, Jenn Toothaker and project team member, Phil Erickson explained that the next three meetings will be part of a planning charrette. Phil explained that a charrette is an intensive and focused series of meetings and working sessions to advance major items for the Broadway Boulevard Improvement project. Phil went on to explain that this initial charrette will be a planning charrette and not a heavily design-oriented charrette. The focus of the May 21, 2013 meeting is on the discussion and refinement of the Draft Transportation Performance Measures and Draft Example Cross Section Concepts.

Following the May 21, 2013 meeting, the project team will make revisions to the items discussed at the meeting and will bring them back to the Task Force at the May 23, 2013 meeting for further discussion and refinement. The May 30, 2013 meeting would bring back all the items for review, discussion, further refinement, and possible endorsement to take to the Stakeholder Agencies for their review.

## 2. First Call to the Audience

Five (5) members of the audience filled out a speaker's card and were called upon to address the task force:

JD Garcia:

"Good evening. My name is JD Garcia I am a professor emeritus of physics at the University of Arizona. Our house is on the Broadway corridor study area and I am a member of the Broadway Coalition. I wanted to talk to you about a sense of place. What defines Tucson for those of us who live here? Or for visitors who stay here for more than a couple of days?

The Old Pueblo has a unique character which has different shades of meaning for each of us but I am sure that those individual images have many common elements. You are engaged in a process which has the potential to improve the quality of life and enhance the positive aspects of our fine city. We are very appreciative of your efforts on behalf of all of us and we know that it takes up a lot of your spare time. Thank you very much for doing this.

The Broadway Corridor Project also has the potential to make Broadway Boulevard just another arterial with reigning businesses. Some urban blight occurring in historic neighborhoods around it... a mini freeway. Fortunately, there are tools to help you prevent this version of the future. Not only are there tools, but you have an expert concerning those tools, Phil Erickson, at your disposal, to help you keep and improve your portion of Broadway as a destination, having a sense of place that everybody admires, a meeting place for everybody in surrounding neighborhoods, a go-to place for the entire city using Phil's talents to create a better future for your neighborhoods. Give him a challenge: ask him to help you keep this from becoming just another roadway project.

The tools that you have, come under the label of context-sensitive design. Our professional planners on the Broadway Coalition, Marc Fink and Margot Garcia, have

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given a bird's eye description of that large topic for you, a copy of which is at your seats, a small pamphlet (yellow pamphlet). I urge you to read the Broadway Coalition pamphlet on context-sensitive design and the criteria that we on the Broadway Coalition extracted from those plans (which is also at your desk) and hope that with these ideas you can enhance and not diminish the livability of, in, and around the corridor while improving transportation efficiency. Create a gem worthy of our great city! Thanks for listening."

Margot Garcia:

"Good evening. My name is Margot Garcia and I am with the Broadway Coalition. I thank you for listening tonight as we begin the difficult task of figuring out how to take everybody's suggestions and needs into a finite space, hopefully the smaller the better. I have been one of those calling for shaded sidewalks by pedestrians and ample bicycle lanes. Now punch time is upon us as we see the footage required for all of our hopes.

The design team has provided a series of cards with information on them about the widths needed for much of these elements and they have provided some scenarios with how they fit together. I was very angry when I first saw the scenarios because there were no widths presented that spoke to what the public has overwhelmingly been asking for. That the roadway stays within the existing right of way. Then I thought, well maybe the design team is trying to show us how hard it will be to satisfy all of our wants. In studying the map of Broadway from Euclid to Country Club, I see that the roadway is 60 feet wide for a portion and 64 feet for the rest of it. The right of way, the land the City actually already owns, varies from 70 feet to 144 feet. As I studied where the different land uses are, the commercial strips the office buildings, and the housing, I began to envision an approach to designing a cross width of the roadway that was sensitive to the surrounding uses of that particular block. I would call this block by block sensitive, context-sensitive design. JD has already given you a pamphlet that talks about what the context sensitive design is. So here is an opportunity to put it into action.

The wider sidewalks with the shade tree could be along the commercial areas. Maybe they have some parking in front of their stores. Helping the merchants also put parking along a side street, or a small parking structure behind the stores. After all when I go to the mall, I don't expect to park in front of the store I want to go in to. I get to park in some gigantic parking lot and realize that getting to the store is going to be part of my exercise for the day. On narrower sections of the right of way the sidewalk could do just that without any shade trees. When thinking about how to include high occupancy transit and we don't know if that means a streetcar, modern streetcar, express busses, or something else the lanes needed for this could be time zoned. They are exclusive for busses only during rush hours and open to all vehicles the rest of the time. It would be no different than a diamond lane on the freeway. So I call on you to put on your creative thinking caps and look at the individual blocks of Broadway. What fits here? How can we preserve the sense of

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place, the historic buildings, and the businesses and still provide opportunities for safe multi modal transit? Thank you."

Marc Fink:

For those of you who may not know me, I have spoken many times, and probably you will hear again "here's the guy talking about vision again." I think it's really important, we are all excited, we are talking about cross-sections and how we design the road (which is what everybody wanted to do). In doing this there is still something that needs to be more in mind, that needs to be in front of your mind, the whole time and should maybe be on the screen or on the wall and that is, what are you designing this road for? It makes me very nervous for you to go into this process talking about design metrics, whether they are transportation or non-transportation if you don't know what you are planning for. Any metric can be good or bad depending upon what it measures. A broad example, and I am not saying that this is for here, is a freeway. This is a residential street and will have completely different matrices and the values that are associated with which are appropriate for one and not the other. And this gets into the whole idea of context sensitive design again which you know, you have talked about context sensitive design, you talked around the vision but you really haven't finalized it or even come to any sort of consensus that that is how you need to design the street. What is the context of Broadway? Broadway Coalition obviously has one sense and if you have gotten a sense from other people that maybe is similar, but again I would urge you to do that when you have the discussions today, Thursday and next week and down the road that you always keep in mind: What are we doing it for (because again that determines it)?

In addition, we passed out - and it is on yellow paper- some information that came from the Better Cities website, which is a great planning website for any of those who are interested. What it is dealing with is design speeds on the road and it's a counter intuitive idea that actually slower design speeds will accommodate more cars. What the studies are talking about is a 25/ mile per hour speed limit will actually accommodate more cars based on the idea that the higher the speed limit and of course hopefully the greater the distance between cars. So, a slower traffic speed of for instance 25 miles per hour can actually accommodate far more cars than a traffic speed of 40. What is also important about this is that it then lends itself into lower design speeds/lower speeds per cars and how this helps businesses. Particularly businesses, which is my understanding, that we are all wanting to promote because if you have wider roads and higher design speeds, people have less time to see what the businesses are. The only thing that they are able to incorporate is chains, they can see arches or a KFC but they can't see a Rocco's or many of the other businesses throughout the street because they are unique businesses. So anyway, thank you...good luck and hopefully we will all come together with something really good."

Gene Caywood:

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"Hi. Good evening, Gene Caywood, with Southern Arizona Transit Advocates. For most of you who were on the committee at the time, we made a presentation back in (I believe it was) December and we promised you that we would come back with various alternatives particularly for high capacity transit and I just wanted to let you know we are finally seriously working on those. Hopefully, within the next week we will have those for you to look at. In looking at those, I think the exercise that you are working on, particularly with regard to the cross sections and with the various widths, is very important. The work that we are doing is trying to honor a lot of the things that you guys said: protect the businesses, use minimal widening, and all those kinds of things. To do that, you have to watch the widths of things very carefully and I think that is where the cross sections come into play I think. Depending on how wide you make everything it's going to depend on how wide the whole road ends up. So that becomes very critical and I just wanted to say, pay close attention when you are working on that. Thank you."

Bill Nelson:

"My name is Bill Nelson; I am the president of GLHN Architects and Engineers and am a property owner right across the street. I would like to just say a couple of things really quickly so that we can get back on track. One, I recognize what our effort is going to be over the next 30 days or so, and so I would like to just offer one of the basic engineering concepts with you which we call "good enough." Any time we design anything, do anything and you go beyond this concept of good enough, we are spending somebody's resources and in this case, it is the tax payers'. I would say what is pretty much good enough is let's just go a 1,000 feet East of here and look at the next six miles of Broadway. To build anything greater than that, albeit it does not meet all the current recommended standards, meets all the minimum standards; to go beyond that 124 foot right of way here...why would you do that? Why would you do that? So, I just want to suggest that the answer to this whole exercise is found a 1,000 feet east of here. Thank you."

**3. Approval of Meeting Summary: April 18, 2013**

Jenn Toothaker asked the Task Force for their approval of the April 18, 2013 Meeting Summary. The Task Force approved the summary with no revisions requested.

**4. Confirm Meeting Dates through Charrette #2 (September/October 2013)**

The project team presented the Task Force with a schedule of meeting dates through the next charrette. The Task Force confirmed that they would meet on the following days:

Thursday, June 20, 2013: Study Session Meeting

Thursday, July 25, 2013: Action Meeting

Thursday, September 5, 2013: Community Wide Meeting #3

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Monday, September 30, 2013: Charrette #2 (Day 1)

Thursday, October 3, 2013: Charrette #2 (Day 2)

## 5. Public Input Report, and Reports on Project Presentations & Outreach

Jenn Toothaker reviewed the Public Input Report with the CTF. The report consisted of documentation of public input received from April 9, 2013 through May, 8, 2013. Following the review of the Public Input Review Jenn briefly presented highlights from the Regional Transportation Authority (RTA) Technical Management Committee (T/MC) meeting she recently attended and invited members of the Task Force to join her the following day (May 22, 2013) at the RTA Citizens Accountability for Regional Transportation (CART) Committee meeting where she will be presenting the progress made recently on the Broadway Boulevard Improvement Project for the consideration of the CART Committee Members.

*RTA TMC Meeting:* Jenn stated that the RTA T/MC meeting that she attended on May 16, 2013 was informative for the planning and design phase of the project as the T/MC is an important stakeholder in the ultimate decisions and recommendations that will be made to the RTA Board. She stated that there were several concerns brought up by the T/MC members. A concern shared by several members of the committee was that the further the project deviates from the eight lanes originally planned, and approved by voters, the less likely the project will be endorsed by the T/MC and the RTA Board. Members of the T/MC stated that six travel lanes plus transit lanes might be overbuilding the roadway within the project area. Others stated support for a six-lane option, sharing that such a change seems reasonable. Other members questioned that a four-lane option would even be considered. After Jenn presented this to the Task Force a brief discussion ensued (summarized below).

### CTF Questions and Comments

- This concerns me because it sounds like that anything other than eight lanes will not be considered.
- To what degree do you get a sense that people are intractably set in there mindset that the project should not be modified? I always feel that there is always a possibility that you change someone's mind if you present a good enough case and I know that we will produce an incredibly well thought out and rational argument for what we ultimately recommend. Do you feel that it would be helpful to have active communication with these groups to help advance our cause?
- I respect what you are saying. I really think there is an opportunity here to make a viable product, and design is always about looking at various

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examples, whether its four lanes, six lanes, or twenty-five lanes. Steve Christy (RTA Board Member) is all about cars; however, if there is a way to equal travel in terms of other types of transit, if we show there are modes of travel that equal the cars and an engineering analysis is done that shows that the logistical engineering items meet the demand for the roadway sections, we have an incredible opportunity to make our case.

- I am also interested in whether or not the budget originally called for the purchase and demolition of all the buildings on the north side of the road, because that would cost a small fortune. So, we do have an incredible opportunity to design a great roadway, not something that just conforms to the eight lanes, but meets the criteria.

### Summarized Project Team Responses

- There is a camp that fundamentally believes that the RTA plan is a commitment to voters and the projects that were included in the plan should be implemented how they were voted on - without modifications. There is a very large spectrum of opinions out there so we need to make sure that whatever recommendations we put forward are defensible.
- Yes, I do think engaging early and often will help us convey our argument and help these groups understand the direction that we are going. But there will be some that are intractable in their mindset.
- Earlier you asked about elemental and substantial. There are four elements in the RTA plan. Broadway is one of thirty five projects under the roadway improvement element. Substantial refers to a plus or minus 10 percent change in the overall element, or a fifteen percent change in two elements combined. We are good moving forward, and we really do not need to worry about discussing elemental or substantial.

## **6. Draft Transportation Performance Measures Including Related Qualitative Assessment of Example Cross Section Concepts**

The Project Technical Design Team presented Draft Transportation Performance to the CTF. These measures were reflective of CTF and public input received to date, guidance from U.S. EPA's *Guide to Sustainable Transportation performance measures* and other best practices research, including: ITE, *Designing Walkable Urban Thoroughfares: A context Sensitive Approach*; NACTO, *Urban Bikeway Design Guide*; U.S. Access Board, *Public Right-of-Way Accessibility Guidelines*; and AASHTO, *Green Book*. The performance measures that were presented are a starting point for selecting and further developing "Transportation" and "Non-transportation" measures for the Broadway Boulevard Improvement project and are organized by the following topic areas:

- Pedestrian Access and Mobility
- Bicycle Access and Mobility

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- Transit Access and Mobility
- Vehicular Access and Mobility

The Task Force discussed each of the four topic areas using two - three performance measures per each topic as an example. Each performance measure that was presented included a description of the performance measure, how it is measured, what factors are considered, the ability of the project's design recommendation to affect the performance measure, and the ability of the Task Force to evaluate the performance measure at this point in the design process. The Task Force provided tables with these metrics and descriptions for each performance measure that was created. Additionally, the project technical team presented how they will assess the cross section concepts using the performance measures. It was explained that at this level of design development that most of the initial assessment would be qualitative as impacts related to the alignment of the roadway cannot be fully evaluated as it is not included in the design concepts at this point in time. The assessment report will be graphical in nature and will analyze each cross-section concept through a comparison to each performance measure and overall cost. Following this overview, the CTF and the Project Technical Team engaged in a lengthy conversation which is summarized below (organized by topic area discussed).

### *Overview*

#### *CTF Questions and Comments*

- Overall how would you compare these concepts against each other, if it is not purely a rating system?
- Have you used performance measures and assessment techniques similar to this before or was this developed solely for the Broadway project?
- Was this process used on Grant Road?
- When comparing performance measures, who decides what the baseline is and what will exceed or decrease the baseline?

#### *Summarized Project Team Responses*

- It's more of a holistic approach where you would bring your own value system and weight the measures according to how important you feel they are in respect to one another. This initial process is more qualitative.
- Yes, we developed a similar system for an area in San Francisco.
- No, we did not have to use it on Grant Road because the cross section was never in question.
- Depending on the performance measure, there will be base criteria, for example: sidewalk width. Does the performance of the alternative exceed the sidewalk width or is it less? Transportation will be a bit different, for instance, travel time down the corridor; this will be more relative to the other performance measures. Some of the measures will be more qualitative. We will bring back the rankings we come up with to get your input on them. The first pass for all of this will be the planning team coming

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up with a set of rankings and then we will come back to you to get your input. This will then go to the stakeholder agencies and in September will go to the public. After this we will narrow the alternatives, based off of CTF and the public's input, and get into studying the alignment and evaluating things quantitatively.

### *Pedestrian Access and Mobility*

#### *CTF Questions and Comments*

- Are we assessing whether or not these match with the vision and goals? Are the Vision and Goals included in the process in which will be using to analyze the performance measures?
- You mentioned in the table set conflicting goals (in relation to the performance measures) and it was my hope that we come back and discuss these as a group as we go through the performance measures. I would like to know how well the goals work with the performance measures.
- Is parking part of pedestrian access - as in, when you park, is there criteria that measures the ability of one to park and the ease of entering the pedestrian environment?
- In terms of vehicle conflicts with pedestrians and bicyclists at driveways, a factor for bicyclists is landscape. It can affect visibility.
- I know there are standards for visual access, but you cannot always control what the property owner does behind the property line. If we could think of recommendations for sight furnishings, signage and visibility that would be great.

#### *Summarized Project Team Responses*

- The performance measures will be cross referenced against the vision and goals. What I envision happening is using the two to influence on another. The information that comes out of evaluating the performance measures will influence how you reflect on the goals, and will allow you to start thinking about how you would like to narrow the goals. As you narrow the goals, it may prompt you to want to adjust the performance measures. It is a very dynamic process because of how wide the spectrum of opinion is about what should be done with the cross-section.
- I can see a way to be more specific about how the goals interrelate with the performance measures. Let us think of a way to present this to you. However, you can always think of how well the goals are being met by the design recommendations we make.
- I don't think this would fall under this measure, but there are some other performance measures that it would fall under. We did not specifically address that ease of ability for any area user to become a pedestrian, but we can add it as an additional measure.

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## *Bicycle Access and Mobility*

### CTF Questions and Comments

- Problems with facilities with bike lanes that come up with the Bicycle Advisory Committee is that many bike lanes are not legal bike lanes. They are striped shoulders and there many concerns associated with this, as well as legal implications. With performance measures, we really need to know what we are talking about because the performance will heavily depend on if we are designing the roadway with legitimate bike lanes.
- They probably will not look that different but there are a host of fault and liability issues associated with whether or not the bike lane is considered a legal bike lane.
- Debris could be a part of this issue as well. This performance measure (2D) is affected by a lot of different things, such as landscaping.
- So what is the legal definition of a bike lane? Is it a certain width, does it have to certain markings, etc?
- There are a whole range of different options and standards that defines a proper bike lane.
- Additionally, with bike crossings is there a preferred distance between them, at intersections as well as with pedestrian crossings, to make them a destination between the two sides of the street?
- Also, from a cyclist's point of view, if the pedestrian network is good, in terms of crossings and signalization, then the bicycle network will be good as well. A more important part of the performance measure is the continuity of the network.
- Bike facilities such as those are to give less experienced riders more confidence as they do give higher visibility. There is another issue I want to bring up, and I know this is getting to a very detailed level, but one of the things coming out of the BAC is using NACTO guidelines, for example with trap lanes or drop lanes. This has been fought against by TDOT because they are not the adopted guidelines that have AASHTO standards. I say this because it brings up the point of designing something that won't be second-guessed and pushing the limit of what will be accepted by the City.
- Is there a difference in safety between the two standards (AASHTO and NACTO)?
- It would be hard to show examples of the difference between the two standards, but there is definitely a difference in the level of comfort. For example, if you ride Broadway westbound from El Con Mall and encounter the intersection with Country Club there is a drop lane where cars have to merge over. The BAC suggestion was to have a marking that continued the bike lane but the City did not want to do it because it is not an AASHTO standard.

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### Summarized Project Team Responses

- So far, we are assuming that we will be building legal bike lanes with proper widths, curb treatments and appropriate signage.
- What is a “legal” bike lane?
- The legal bike lane issue relates directly to the pavement condition performance measure - performance measure 2D.
- We will get into more depth regarding the design of bike lanes during the next agenda item.
- We will be looking at the issue of distance between crossings, as well performance measures that deal with the issue of bicycle networks, so it will be important to have crossings near bicycle networks. We will also look at measuring the distance between crossings which will affect how frequent crossings are placed along the corridor.
- Another bike facility issue one is that we are looking at the newest best practices that have to deal with bike markings and how to apply them to the roadway. Some of these are already being implemented throughout Tucson; for example, the green paint to identify bike lanes and other facilities such as bike boxes.
- The issue between the NACTO and AASHTO guidelines is very interesting because Tucson always has been known as pushing the limits when it comes to bike facility standards. This is an issue that we will continually think about as we move further along. That also makes me think of another performance measure that we have not included, and that is of the continuity of the bike network, so that is something we will add to the performance measures as well.

### Vehicle Access and Mobility

#### CTF Questions and Comments

- How does the lower speed limit factor into the discussion of intersection delay and signal function and the amount of cars that move down the road at a given time?
- Does this take into account the reduced travel time for ingress and egress from the various driveways along the corridor?
- Vehicle access to businesses does not seem to be included in the performance measures.
- If none of the vehicles get to the speed limit for more than a fraction of a second, the point is moot.
- Would you be able to model different scenarios, in other words make exceptions if we have transit improvements and higher transit ridership that would take away a certain number of commuter vehicles? Or would you look at the same number of commuter vehicle and higher transit ridership with the improved facilities?

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- I would like to ask about the effect of adding lanes to an intersection. How is the time it takes to get through intersections affected by adding lanes to the intersection. For example, what is the difference in the amount of time it takes to get through an intersection for two lanes versus three lanes? How effective is widening in reducing transit time.
- What about pollution, for example, two lanes versus six lanes?
- What are the "units" used in this analysis. I am confused about what you are measuring. Is it trips or vehicles?
- In one of the previous illustrations you mentioned new technologies. What other new technologies are coming down the pipeline? Is this something we can look at?

#### Summarized Project Team Responses

- To a degree, the speed limit does factor into this and that ends up being evaluated through the corridor travel time.
- Yes, the performance measure does take into account the reduced travel time for cars entering and exiting driveways and this would come out the model.
- Vehicle access to businesses is included under accident prevention, but it should be added as a standalone measure.
- So this would be an addition to the performance measures.
- Yes, we can call it "access management to adjacent uses."
- Should we also add the speed limit measure that Rocco mentioned earlier as a new performance measure?
- On an arterial, the travel time and delay are most affected by the intersection design and the signalization. For example, if the speed limit is 45, but the intersection cannot handle the capacity then you are still going to have to stop. Progression of signals, which is related to the speed limit, can help but the actual speed limit itself does not impact intersections or corridor travel time.
- Remember that the speed limit is regulatory, and it is based on what the comfortable speed is at which drivers are going. So, if you set a speed limit at 25 miles per hour, but the road can handle higher speeds, the driver will travel at a higher speed.
- That is along the same lines as something that we have been talking about in terms of the traffic modeling concerns that have been raised. The way we have been talking about looking at it is taking the PAG numbers and modeling that, and then modeling something with reduced traffic growth projections.

Also, we have talked about creating a model that shows how many vehicle trips a certain concept can accommodate and given that, if we assume that the person trips is correct, how could we shift people by carpooling or utilizing traffic. Essentially, it would present a scenario where we would say,

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for example, to make this roadway concept work we would have to triple transit ridership.

- It depends on how you allocate the “green time” during each light cycle. During a light cycle there is a certain amount time that the light is green and this must be allocated for all of the uses: pedestrian, transit, vehicle, etc. For example, if you give the transit priority a bit more green time then you have improved the transit time, so it depends on the allocation of the green time. If you add more lanes you can get more vehicles through in a shorter amount of green time.
- The flip side of this is the wider you make the street the more time it takes for pedestrians to get across and that can affect corridor travel time. There are projects I have worked on where pedestrian crossing time was the driving force. We produced models with VISM that actually showed that reducing the width of the road and shortening the time it took for a pedestrian to cross lowered the overall corridor travel time and it performed better overall.
- In regard to pollution and the width of the road: that is something we will look at on Thursday with the non-performance transportation measures which will account for particulates released by starting and stopping and congestion.
- The unit of measurement depends on the performance measure. For some measures it is the person, for some it is vehicle trips, etc.
- We can speak to the new types of technology, but that is something you can assume that would apply to all to all of the performance measures and all of the scenarios. I am most familiar for technology to reduce travel time on freeways, I have not heard much about similar technology for arterials.

## 7. Initial Cross Section Concepts

Following the discussion of performance measures, the Project Technical Team presented Initial Cross Section Concepts to the Task Force. These initial concepts explored a range of potential design solutions based on community input received to date. The cross sections were organized by five families of concepts based on number and function of travel lanes. When developing the concepts the project also developed “cards” of the elements that were incorporated in the design, such as: widths of roadways, sidewalks and associated landscape options, medians, and local access lanes. These initial concepts were presented as “drafts” and will be used in the initial evaluations and the next round of public and stakeholder agency review and comments. The families of cross sections were organized as follows: four lane, four lane plus transit lanes, six lanes, six lane plus transit lanes, and local access lanes. Each family grouping consisted of multiple options that spanned a dimension of widths. Listed below is the dimension range for each family of cross sections:

- Four Lane: 92 to 130 feet

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- Four Lane plus Transit Lanes: 116 to 154 feet
- Six Lane: 114 to 152 feet
- Six Lane plus Transit Lanes:
- Local Access Lane: 118 to 166 feet

Following the presentation of these initial concepts, the Project Technical Team engaged the Task Force in a detailed conversation (summarized below) that included the following questions:

1. Are there additional “families” of design approaches to add?
2. Are there additional cross section options we should illustrate?
3. Are there cross section options we should eliminate?

### CTF Questions and Comments

- At medians there will be pinch points. Are there some points where we could design a smaller median, such as a Jersey Barrier [grey cement temporary walls] or something without vegetation?
- How do these scenarios accommodate bus pullouts?
- Would just having bus pullouts be an idea that is acceptable, if we were to not have the dedicated transit lanes?
- Why do all of the scenarios for high capacity transit have it in the middle lane?
- With the local access lane scenarios, where would you put transit?
- What happens east of Country Club and west of Euclid? The local access lane does not make sense to me. Why would we just put it in a 2.5 mile stretch of the roadway? Whatever we do, I want to make sure it connects with the transit network along the rest of Broadway.
- Are we going to get data from other projects, for example, Downtown Links in terms of what traffic flow will be in the corridor?
- I would really advocate for that data from other projects. Especially, because Downtown Links is critical to Broadway and Downtown. I think the project will syphon a lot of traffic away from Broadway. Additionally, the I-10 connection with Aviation connection will affect Broadway, as well.
- What's the process between now and Thursday? Are we going to have a set of cross-sections we all agree upon by the end of the 30<sup>th</sup>?
- You show transit in the center and medians on the side of the transit. Is there information regarding the safety benefits of this?
- Are there any studies that we could look at, that would be beneficial to this discussion?

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Summarized Project Team Responses

- Yes, there are areas on Grant Road where we designed smaller medians. There are areas that have 3-foot medians with no vegetation.
- Another thing you need to consider is that, at many medians, you need to make room for left turn requirements.
- You can look at the cards with the wider landscaping treatments, for example the 24-foot-wide card, and replace the landscaping with a bus pullout. It is similar to intersections - at this point we have not been illustrating that.
- Bus pullouts are definitely something that be included and evaluated as an alternative. That's how the concepts that do not have transit lanes would function. They would all have bus pullouts.
- The lanes have to be a certain size, but you can have the high capacity transit on the side; however, there are many conflicts with this, such as pedestrians, bicyclists and others. Additionally, the center transit option is the best for cross-section efficiency. We can look at alternatives that have the high capacity transit on the side or alternatives that combine side lanes and center lanes (hybrid running lanes).
- In June, we will bring to you a Bus Rapid Transit (BRT) update. Some of those considerations can be discussed then.
- There are other hybrid options we have been looking at as well for BRT- and I believe these are being evaluated in the BRT study - where you take a midpoint approach and let the buses run in mixed flow until you get near a stop, which would be located at intersection, and then you bring the bus into a dedicated lane. This would enhance corridor travel time and make the queue jump easier. This would be illustrated in a cross-section concept without a dedicated transit lane, but again this is something we would have to look at.
- [In regard to the local access lane option] You would widen the median and have the buses pull into the areas where it is wide enough. However, you would lose the parking and landscaping in these areas.
- To ensure continuity with the transit network in the other areas of Broadway, we need to check in with the stakeholder agencies and have updates - such as the BRT update - that we will bring to you at the June meeting, and make sure we continue to have these check-ins as we move along.
- We will have a better ability to look at the issue of continuity in the transit network in June. Just to reaffirm with everyone, there has been, at a sketch level in the High Capacity Transit Study, a look into utilizing Broadway as an ideal roadway for implementing BRT as a near term option. Where would you run the transit? In the middle or in the side lanes? This evaluation is still at a very high [conceptual] level, and the update we provide you will show if it is going to be evaluated in greater detail.

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- Another thing to point out is that a lot of BRT systems are not consistent in how they provide the bus priority as you move through the whole system. So, while we will do everything we can to coordinate with what is going on with the overall system we can look at our segment and look at what is best for our segment in terms of design considerations and how the system functions.
- Between now and the May 30, 2013 meeting, if there are other alternatives you would like us to explore, or if you want to build your own cross-section, please email us. Also, please look at the cards and provide feedback if you would like anything changed on those as well. Send us any of the changes you would like and we will evaluate them between now and then.
- We can look into the safety considerations for both the center transit and side transit stops. I do not know if there any specific studies that illustrate this, but I do have qualitative opinions on the matter.
- The Euclid Corridor study is a good example that would help guide your design decisions. The problem is that there are not many examples of this type of process in the United States; however, there are other tools and websites we can provide you links to.

## 8. Second Call to the Audience

Three (3) members of the public filled out speakers cards and were called on to address the Task Force:

### Jessica Shuman:

"Hello. I have some rough, very rough notes that I drafted over the course of the meeting and after looking at these designs, it seems to me like you might be working backwards and I feel like I really need to place my hopes and dreams with the Citizen's Task Force and not the project design team because what I see coming from the design team is somewhat shocking. It doesn't seem like there is an application of context sensitive design.

It seems like maybe a better way to work would be to actually look at the overhead map of where the current roadway is, and really look at it in its context and then work from there. Of the designs that I saw presented I am not really seeing that these options honor the overwhelming of the majority of public input. When the narrowest option presented is 92-97 feet and I didn't really see any creative options for the preservation of businesses in those designs. We need to think more about things like shared lanes and yes the answer to your question, "can we have bus pullouts?" -is, yes we can!

We need to have a discussion about ways to connect the neighborhoods to one another and the way to connect businesses to one another. Monica and I are allies and colleagues and the only places where we can cross the street are a quarter of a mile down without jaywalking. So that is another issue that needs to be thought out. I also want to point out that the thing that was most interesting or valuable to

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me in the graphics were the actual buildings and the sense of place. Then when looking at some of these other materials I saw that you had a lot of 8-foot sidewalks on the street and I would question why you would have such wide sidewalks when we are trying to preserve businesses and keep it as a destination, because if you have great sidewalks, but you have no businesses, then there is no value in having wide sidewalks when they don't lead to anywhere. Also, I noticed in some of the written text, it said that when you have 12-feet for sidewalks and landscaping that it doesn't allow for any shade trees. I would invite you to walk through my neighborhood, Dunbar Springs, where we have over 1,200 native shade trees planted and lots of rich, lush vegetation. Even though there is not paved sidewalks there is at least 3-4 feet for people to walk with beautiful shade trees and lean vegetation. So, that is it for now, thank you."

Gene Caywood:

"I found the discussion and the presentation very interesting and I just have a few comments on it. First of all, in connection with your question about the connections for high capacity transit on both ends of the corridor that we are studying: this will be included in the drawings that we are making and the presentation that we will have for you (not as a formal presentation, but the drawings so that you can look at them). That is an issue that we have addressed. It is important and I think it's solvable, but I think the general answer is that each segment of the Broadway, as it was alluded to by Phil, is true of a lot of other BRT and LRT systems, where each segment of a corridor is handled differently. That is what we are going to have to do on Broadway or we are not going to be able to fit it in.

The other thing, on one of the cross-section cards, where you had two 13-foot lanes for transit (so that you have room in the middle for the pole) I would suggest that that can be eliminated. The extra footage there can be eliminated and you go back down to either 12-foot or 11-foot lanes if you use span wires that go clear across the street (which is what you see on 4<sup>th</sup> Avenue). It is what we had at Old Pueblo Trolley, an arrangement beforehand. It's what's being installed with the new Streetcar and span wires. Span wires will work on the pavement on 4<sup>th</sup> Avenue. As it was mentioned earlier tonight by Margaret, Broadway is 64-feet wide. Particularly in the sections where we were trying to hold to the existing pavement within the existing right of way (where a span arrangement would work), it's not too far to run the span wires for those kind of distances. The last thing that I wanted to say is that I think that there's ways to cut the transit things down even more than what was shown on the cross sections and what we will be showing and proposing is using a travel lane for one of the bus or rail lanes and also using the median in that regard. Obviously, if you use the median you will lose landscaping, but then again, we don't have any landscaping on any median on this section of Broadway, so that's the question that you'd have to debate. Do you want to provide the extra room for the landscaping or can we take the existing painted median we have and use it for one of the transit lanes. That is basically what we will be proposing. Thank you."

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Bob Cook:

First of all, I just wanted to address the first thing that Jenn mentioned, which is the so called debate among the factions within the RTA and within the CART. I don't believe it's really about as, Steve Christy might explain it, as supporting the plan/or not supporting the plan. I think that it's really an issue with how we interpret this plan. I think it comes down to context and the real question is, are we going to support the idea that this plan and its implementation should represent the context of 2006 or should it represent current trends and the emerging context that we are seeing?

In support of that, I am very happy to announce that US PIRG, which is a confederation of State and local public interest research groups which have been operating for 40 years in this country has just released (this week) a sixty-page report called, "New Direction: Our changing relationship with driving and implications for America's future." It is a good one-source document to really begin to analyze what's going on in the alternative modes. When (and this is a side-bar) you talk about multi-modal and start doing some comparisons, you really need to look at more than just vehicular modes and transit modes. You really have to look at all modes. The problem in making the arguments that you are going to have to make (with whatever plan that you come up with) is the data for pedestrian and bike use. You can't accept the excuse that, because we don't have any good data we're not going to really analyze those rigorously. I copied this for you, Jenn, I printed out the URL so that you can actually download this document yourself and I highly recommend it, because it explains what I have been arguing to the CART and to the RTA in the last couple of months, which is that we are seeing a non-proportional increase in the use of these modes since 2004.

It's well-documented in this report and this report is raising some major changes about the miss-matches between bureaucratic policies of transportation planning policies in this country and what's happening on the ground.

In terms of the performance measures that you are going to be looking at Thursday, especially economic analysis, economic vitality, and cost, I think you have to be tuned into the fact that if we over-invest in modes that have no demand we are going to be under-investing in modes that have high demand increasingly. That would only spell doom for economic vitality, because we are in a competitive situation with every other city in the country to really attract, and maintain and to retain the new generation coming up. The implementation of this plan is really going to affect the next 20 years, 30 years, not the thinking in 2006 so just keep that in mind.

The only other thing on performance measures today and going forward is that this report does mention the issue of energy and our vulnerability to changes in the energy markets in the next 20-30 years. It also mentions the fact that climate change is going to increasingly be a performance measure that we incorporate into all planning. It hasn't been incorporated sufficiently today, and I think that this project is going to be the place where we really begin to look at the deep

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carbonization of our total transportation system and the Tucson Region. So thank you very much."

## 9. Next Steps/Roundtable

During the next steps and roundtable, Jenn Toothaker confirmed the next meeting date and agenda with the Task Force. The Task Force also continued their thoughts regarding the initial cross section concepts and draft performance measures. These comments are summarized below.

- I want to clarify something, regarding the materials we were given today: we should not try to think about every possible scenario, but take what we have learned today and through public input, and reflect on that to guide our decisions, correct?
- Is there a way you can incorporate bus pullouts into the illustrations and possibly a concept with the dedicated transit lanes on the outside lanes?
- I would be interested to see the narrower cross-sections, those within the existing right-of-way. Is there any way to provide shade structures instead of vegetation or gravel? It would seem that these would be more cost effective, not only in the installation of them but also in regard to long term maintenance costs. It may change the profile of the landscape as well and require less room than wider trees.
- Shade structures are a viable solution from an engineering perspective but there may be some areas in our design that would present implementation issues with the shade structures in terms of visibility and other considerations. We will have to look further into this.
- We need to discuss how fast the City and region are growing, and population growth, and how the increased population will affect the City. We need to accommodate this growth - if we don't, we will have serious problems. I have been reading a lot on this and some of the roads within the City have gotten worse because the traffic has gotten worse and we have not dealt with it. We are never going to build ourselves out of congestion, but it is how we manage the congestion that is critical to how we deal with it. I have heard a lot of arguments against the design process and we will need to come to a compromise that will accommodate growth. I think we should encourage the use of mass transit as much as possible, but I am not in the position - and nor would I want to be - to dictate to people to not use their cars. It is important to think beyond where we are.
- Have other cities ever put up signals that show the timing of congestion and alternate routes to help alleviate congestion on a roadway?
- I have only heard of such a thing on freeways.
- CalTrans is looking at using arterials that are state highways to divert traffic during accidents. I do not know about the technology that would be used but

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I do know from an urban design perspective there is an issue with the signs because they could be quite large.

- Once Downtown Links and the 22<sup>nd</sup> Street widening project are complete, those are the streets that would be used to enter and exit the freeway and signage could divert traffic off of Broadway to these streets.

## 10. Adjourn

Jenn Toothaker called meeting to a close at 8:45 p.m.

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The presentations given at this meeting can be reviewed by visiting the Broadway Boulevard Citizens Task Force web page at:

<http://cms3.tucsonaz.gov/broadway/broadway-citizens-task-force>

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Good evening. My name is JD Garcia. I am a Professor of Physics Emeritus at the University of Arizona. Our house is in the Broadway Corridor Study area, and I am a member of the Broadway Coalition.

I wanted to talk to you about a sense of place: What defines Tucson for those of us who live here or for visitors who stay more than a couple of days? The Old Pueblo has a unique character, which has different shades of meaning for each of us, but I'm sure those individual images have many common elements. You are engaged in a process which has the Potential to improve the quality of life and enhance the positive aspects of our fine city. We are very appreciative of your efforts on behalf of all of us, and we know it is taking a lot of your spare time: Thank You!

The Broadway Corridor project also has the potential to make Broadway Blvd just another arterial, with waning businesses and some urban blight occurring in the historic neighborhoods surrounding it, a mini-freeway. Fortunately, there are tools to help you prevent this version of a future. Not only are there tools, but you have an expert concerning those tools, Phil Erickson, at your disposal, to help you keep and improve your portion of Broadway as a destination, having a sense of place that everybody admires, the meeting location for those in surrounding neighborhoods, a 'go-to' place for the entire city. Use Phil's talents to create a better future for our neighborhoods; **give him the challenge** to help you keep this from becoming just another roadway project.

These tools come under the label "Context Sensitive Design". Our professional planners on the Broadway Coalition, Marc Fink and Margot Garcia, have given a birds-eye description of that large topic for you, a copy of which is at your place.

Cities across the country are using these ideas to enhance roadways in their community to be even better destinations, places for businesses, for people-to-people interactions, places that help display the unique character of Tucson.

I urge you to read the Broadway Coalition's pamphlet on Context Sensitive Design, and hope that with these ideas you can enhance, not diminish, the livability in and around the Broadway Corridor, while improving transportation efficiency. Create a gem worthy of our great city!

Thanks for listening.

J D Garcia

3100 E. Calle Portal

5/21/2013



## BROADWAY COALITION

### Design Criteria for the Improvement of Broadway

- Advance the notion of place (quite different from the notion of corridor), including affording residents in the area a range of services and amenities, establish a unique identity, etc.;
- Preserve the structures that exist along Broadway and provide safe, easy access to them;
- Enhance the business climate/viability;
- Promote use of alternative modes of transportation and give particular attention to pedestrian and bicycle activity and safety;
- Be visually appealing;
- Aid the movement of a people using a variety of forms of vehicular traffic;
- Contribute to environmental sustainability, and
- Be a fiscally sound, affordable approach.

# *Broadway Coalition*

Context Sensitive  
CONTEXT SENSITIVE

Design  
DESIGN

**BROADWAY  
COALITION**



*Broadway my way  
not a highway!*

Broadway Coalition  
P.O. Box 40232  
Tucson, AZ 85717

[broadwaycoalition@gmail.com](mailto:broadwaycoalition@gmail.com)

"We shape our communities, and then they shape us"  
-Winston Churchill

Many communities in the U.S. realize that designing neighborhoods, sub-divisions, business districts and shopping centers around the automobile has diminished, not enhanced the quality of life. Streets are one of the features of the built environment that serve multiple functions. They provide avenues for travel, opportunities for social interaction and physical activity, and serve as organizing elements of our built environment.

Definition: Context Sensitive Design (CSD) or sometimes called Context Sensitive Solutions (CSS) is a term used in transportation planning that has as its fundamental idea that transportation projects should be designed and implemented with respect for their natural and urban contexts or surroundings.

**The Broadway Coalition supports CSD as a guiding principle for the Broadway Project.**

### *Background*

The 1991 Federal Highway Act called Intermodal Surface Transportation Efficiency Act (ISTEA) required multimodal transportation planning and meaningful community involvement in transportation decision making. The Federal Highway Administration (FHWA) partnered with the American Association of State Highway and Transportation Officials (AASHTO) and others to develop policies and standards to incorporate environmental and community values into projects. In 2004 a new website [contextsensitivesolutions.org](http://contextsensitivesolutions.org) was launched to educate professionals in these new ideas.

### *Principles of CSD*

FHWA and AASHTO in 2007 developed 45 objectives that were grouped into six broad principles that delineate both the results to be achieved and processes to be used in CSD.

1. Preserve and enhance human, natural, and built environments;
2. Foster continuing communication and collaborative decision-making to achieve consensus;
3. Establish shared stakeholder vision to provide context for decisions;
4. Exercise creativity and flexibility to shape solutions;
5. Work within clearly defined decision-making process that honors commitment through life-cycle of projects; and
6. Employ an understanding of contexts.

What is striking about the objectives is how few relate directly to transportation. Most of the principles cover the process itself. These objectives emphasize that a context-sensitive design arises from a collaborative, multi-disciplinary process that includes the full range of stakeholders. It mandates meaningful communication from the beginning and that agreement is reached on the purpose and scope before proceeding in the process.

The principles also state that a shared stakeholder vision, with community, environmental, and transportation elements, needs to be established prior to creating a design. Goals, in addition to ones regarding transportation, need to be incorporated into the design that will improve the economic and community livability; in short, the principles state, "it's about quality of life."

### *How Context Sensitive Streets Help Create a More Livable Community*

Streets that fit into the context of the community help create positive feelings about the community, potentially increase visitation and social interaction, expand opportunities for recreation, and assist with surveillance - keep "eyes on the street." Great streets, in addition to fostering community pride and sense of place, are incubators for small local businesses, promote diverse economic activity, and jump-start community revitalization efforts.

CSD designers and planners must take into account the role of the entire right-of-way as public space, and the role of the street in shaping the character, function, and livability of adjacent land uses and neighborhoods. Further, they need to address context at a larger scale that highlights the importance of whole places (e.g., neighborhoods, downtowns, business districts) rather than individual roadway segments or points along a roadway, and distinguish between types of places in a way that reflects the complex nature of contemporary regions.

Some of the basic transportation elements that are needed to improve community livability include:

- A connected network of sidewalks and bike routes;
- Safe, dependable and accessible travel options for community members who cannot afford a car or can't drive;
- Affordable transit that gets people to job centers, retail centers, and recreation facilities;
- Traffic management in neighborhoods, "main" streets, shopping centers, and downtowns, that is compatible with bicycling and walking.

### *Re-thinking the Functional Classification System*

The traditional classification system for streets (described in the Broadway Coalition's "A New View of Functionality") is strikingly different from CSD and innovative street design. Modern urban designers have outlined some of the deficiencies of the traditional classification and level of service (LOS) approach to street design.

1. A street's function in shaping blocks and building lots, in providing public spaces and in accommodating non-motorized modes of travel is disregarded and instead use and speed are the primary elements that distinguish classes of streets.
2. The traditional roadway classification system is too rudimentary to reflect the complexity of urban environments and the need for many different street designs. The palette of four street types in urban areas is inadequate to reflect streets

of varying settings, use by a mix of cars, trucks, buses, bicyclists, and pedestrians, and areas with different character. The designs that emerge are not sufficiently differentiated to respond to and strengthen different urban environments.

**3. While the traditional functional classification system establishes a hierarchy for street networks, it remains silent on the size and scale of the various roadways in each classification. Leaving that decision to a capacity-based needs calculation results over time in simply making big roads bigger. The lack of a framework that pairs roadway design criteria (maximum number of lanes and design speed) with urban design (levels and types of activity, relation to street) in the functional class system creates problems when trying to create a coherent network that serves the diverse economic, social, and environmental needs of metropolitan communities.**

#### *The Answer To These Deficiencies*

CSD Context Sensitive Design (CSD) is a means for transportation projects to incorporate community values relating not only to transportation, but land use, historic preservation, the environment, aesthetics, and scenic quality. This requires the transformation of the highway development process -- a new philosophy, culture, and organizational structure. Transportation engineers, planners and others realize that transportation projects have serious impacts on the surrounding communities. "Transportation corridors, whether a main street or a scenic road, and transit facilities whether a simple bus stop or a major train station, are natural focal points for communities. To view them as catalysts for strengthening community life necessitates a shift away from the way transportation has traditionally been conceived." (Project for Public Spaces for the Transportation and Livable Communities Consortium)

For more information see [www.contextsensitivedesign.org](http://www.contextsensitivedesign.org)

## *How this relates to Broadway*

The preceding discussion has tremendous relevancy to Broadway, which has been called Tucson's Main Street, especially the segment between Country Club and Euclid. Its context includes an area rich in historic buildings and as an historic shopping area (the Sunshine Mile), surrounded by vibrant and historic neighborhoods. It is an area that has been identified by both Imagine Greater Tucson and the draft Plan Tucson as a destination, a place that can serve as a prototype on how to develop a transportation corridor.

This project is an opportunity for Tucson to be a leader in how to use new ideas, new understandings of how people move about, and preserve the historic and economic fabric of the community. We call on all involved to get creative and enhance the city we love.

### **You are welcome to join us**

The Mission of the Broadway Coalition is to educate and organize citizens in Tucson to guide planners and implementers of the Pima County Regional Transportation Plan Project 17 (The Broadway Corridor) to improve Broadway Boulevard between Euclid and Country Club within the existing right-of-way and thereby make the roadway as efficient as possible without causing the demolition of historic structures and displacement of viable small businesses that contribute to the culture and commerce of the community. Widening the street would worsen air quality and increase noise in adjoining neighborhoods. It would tend to isolate the residents of adjoining neighborhoods from each other and discourage the common use of their streets, open spaces, recreational, commercial and educational facilities. Walking and bicycling across the widened street would be more hazardous especially for the young, elderly, and people with special needs. The Coalition urges citizens who value Tucson's urban core to protest the doubling of the width of Broadway between Euclid and Country Club.

<https://sites.google.com/site/broadwaycoalition>

Send email to [broadwaycoalition@gmail.com](mailto:broadwaycoalition@gmail.com)

## Walkable streets II: The documenting

Blog post by [Charles Marohn](#) on 18 Mar 2013

[research](#) [streets](#)

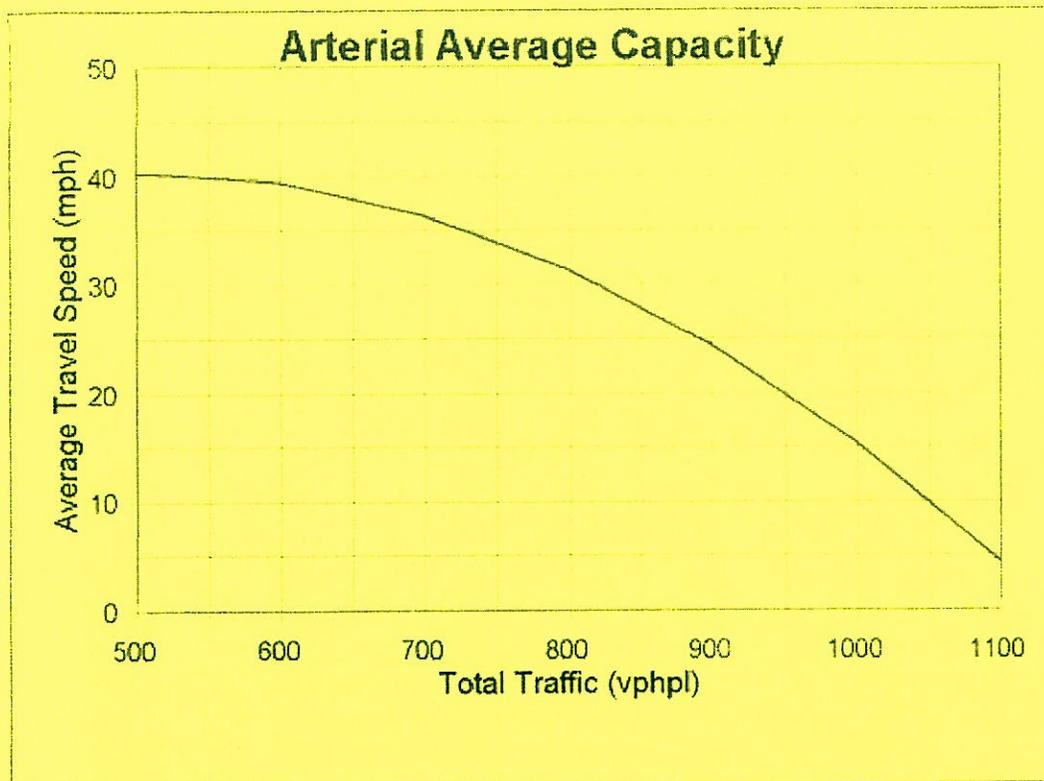
### Geoff Dyer, Better! Cities & Towns

This time last week, I was [considering common issues associated with walkable streets](#) and mentioned that 35-40kph (25mph) moves the most traffic. I didn't even think about it as I wrote it. As something long-embedded in my brain, I just said it. Matter-of-factly.

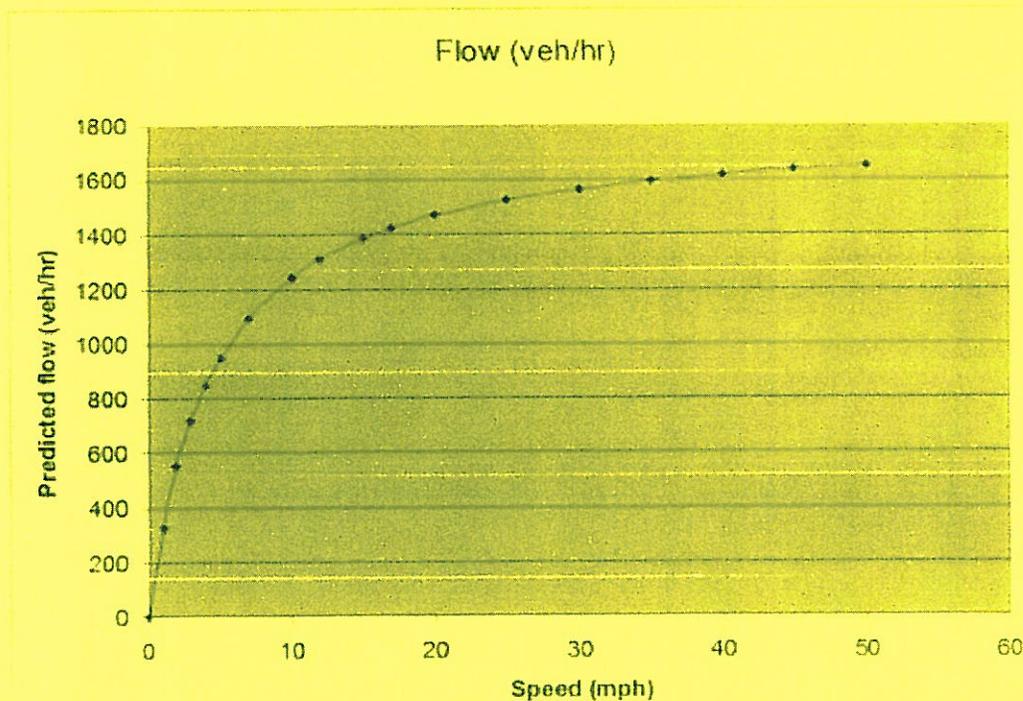
Readers took me to task, wanting to know the source.

I had to dig back into my urban design thesis to find what actually shows a deduction derived from multiple sources, keeping in mind that predicting and studying human behaviour is a social science. The exact reference for 27mph has not turned up yet, but here is the rationale and some supporting material that gets you in the neighborhood.

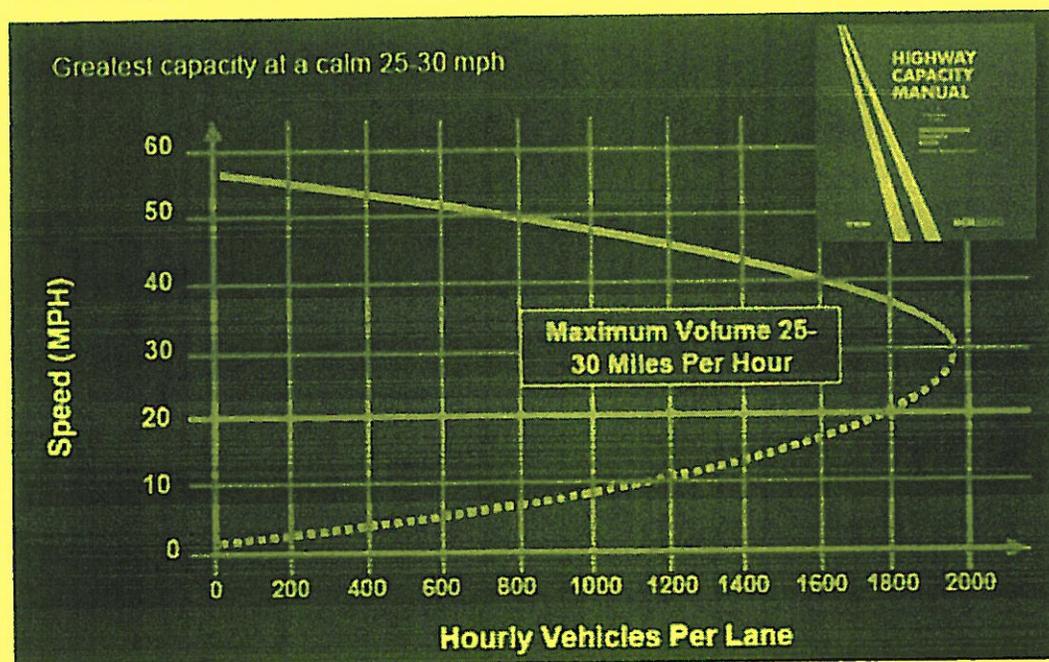
1. The first source is a graph that was widely published in the book "*Traffic Engineering*" for Arterial Average Capacity that plots Average Travel Speed against Total Traffic (Vehicles Per Hour Per Lane VPHPL). The findings show that, at 40mph, you get about 500VPHPL, at 30mph around 820VPHPL, and at 10mph 1050VPHPL. The observable reason for this is that as cars speed up, they spread out. This data, as presented, suggests a free-flow condition.



2. A second graph in [this Transport Policy post](#) creates a great rationale for 20mph speed limits being the future of urban transport. The graph, Figure 4, also plots predicted traffic flow against speed. What's interesting here is that after 20mph, there is really very little difference in additional capacity per lane, levelling out at 50mph. 25mph fits in nicely here as well.



3. Once this post went live, I received still another graph — this one from the [Transportation Research Board's "Highway Capacity Manual"](#) via [Community Builders San Bernardino](#) — demonstrating similar phenomena and settling in on a similar range of speed.



4. *"The Boulevard Book"* by Jacobs et al. is must read... a MUST OWN. One of their key precedent studies is a street called "The Esplanade" in Chico, California. This is the major route leading from the city's Downtown, a multiway boulevard built in the 1920s. Not only does it move lots of traffic elegantly and efficiently at 25mph, it has desirable real estate — commercial, single family homes, multi-family homes, and schools — directly facing it. Now, when you go down a mile from the downtown, the street turns into an "arterial," presumably carrying the same traffic at 40 mph. The first thing you do is sit at a light with a bunch of other drivers amidst a *horrible, nightmarish* suburban shopping center scene. A more expensive street than its older brother (the Esplanade), it behaves so badly that it diminishes property values and human happiness at every intersection. Now, I don't need a book to tell me this, as I've have worked there on a number of occasions and can speak from experience.



*The Esplanade, Chico, California.*

5. Intersections: So, we have determined that lower speeds can support comparable, if not more, vehicles per lane. Any traffic engineer will tell you that actual capacity is really constrained at intersections. So here is the last piece of data. You can only fully realize the advantages of lower speeds in free-flow conditions. This only happens in two ways: 1. On high speed thoroughfares, which are not conducive to a walkable street environment; and 2. Where you can time your lights. This is where 40mph more than fails ... in that after your 40mph free flow, the light turns red and you sit through a light cycle. Once it turns green, the stacked cars slowly move forward, spreading out one by one to reach 40mph+ just in time to hit the next light. In urban situations, with lots of intersections and on major thoroughfares, and at 25mph, you can effectively time the lights for a periodic free-flow condition for most hours of the day. This is how the Esplanade does it, and actually so do many downtowns throughout North America. And during peak hours, yes, they get congested. Just like arterials.

But at least the pedestrians, bikes, and transit can still do their thing. That alone tips the scales.

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