Recommendations from the Transportation System Symposium

In January 2011, Texas State contracted with three consultants, Shawn Turner, Rod Weis, and Bill Martin to provide professional services related to transportation. Each was provided over 60 related documents in advance and they met with numerous stakeholder groups on the Texas State campus from February 1-3, 2011. This report addresses the Campus Master Plan Update recommendations submitted by each of the consultants. A separate document addresses the Transportation System Policy and Procedure Recommendations. It should be noted these recommendations are based on initial impressions and not an exhaustive study or data collection. Several of the recommendations are for gathering better and more comprehensive information.

Details follow this list of recommendations, along with additional comments from the consultants received after they provided their recommendations.

Campus Master Plan Update Recommendations

1. Construct a second bus terminal on the south side of campus (on Woods Street between Guadalupe and LBJ).
2. Re-evaluate the turnaround on Edward Gary for cars accessing the University Street Parking Garage.
3. Re-evaluate the round-about at Moon and Woods Streets.
4. Work with the City of San Marcos to provide better bicyclist access from east of campus including a bike lane along Aquarena.
5. Provide better east-west campus bikeway connectivity.
6. Adopt Complete Streets Policy for campus street design.
7. Don’t forget the details to encourage biking as a safe and convenient alternative (e.g., bike channels, pavement stencils).
8. Provide raised pedestrian crosswalks or other signalization to improve pedestrian safety.
9. Work with the City of San Marcos and TxDot to consider an exclusive pedestrian phase or other pedestrian safety improvements at Aquarena Springs Drive/University Drive and Sessom Drive intersection.
10. Acquire land northeast of campus for a satellite commuter lot.
11. Work with the City of San Marcos on the design of the railroad overpass on Aquarena and promotion for funding.
12. Reconsider proposed locations of parking garages in the Campus Master Plan Long Term Plan. Identify more appropriate locations for parking garages and/or surface lots, for commuters and as new buildings are planned, keeping access and egress in mind.*
13. Review transportation conditions, areas of concern, and recommendations in report from Paul Hamilton, Auxiliary Services.

*Recommendations from sources other than the consultants.
Campus Master Plan Update Recommendations

Mode of Travel – Buses

1. **Construct a second bus terminal on the south side of campus on Woods Street between Guadalupe and LBJ.**
   One of the most critical capacity limitations for the campus is the bus system. The single bus loop on the north side has little or no room for expansion. Additionally, all the bus traffic must use Sessom as the primary street to access the loop and campus. Therefore, a second bus terminal is recommended to be located on the south side of the campus. The realignment of Woods done in conjunction with the construction of the Performing Arts Center presents the opportunity to develop a bus terminal along Woods between LBJ and Guadalupe, below the Undergraduate Academic Center. This new bus terminal could serve routes to the south and west of the campus as well as routes serving Aquarena Springs.

   **Administration Response** – Administration supports this recommendation. Discussions have been held with the appropriate stakeholders on campus to investigate this. Discussions are also occurring with the City of San Marcos regarding Woods Street from Guadalupe to LBJ.

Mode of Travel – Cars

2. **Re-evaluate the turnaround on Edward Gary for cars accessing the University Street Parking Garage.**
   Putting a turnaround on Edward Gary up at Woods Street to allow for stacking of cars accessing the University Street Parking Garage is not optimal. There is not need to allow for that much stacking. The Woods Street turnaround should be moved to the south of Concho Mall. The north portion of Edward Gary could then be converted to green space to provide continuity with Concho Green.

   **Administration Response** – Administration agreed to re-evaluate the turnaround and asked that Morris Architects review the recommendation of the consultant. Discussions were then held with the appropriate stakeholders on campus regarding this recommendation. Some modifications were made to the plans and were adopted for construction.

3. **Re-evaluate the round-about at Moon and Woods Streets.**
   Having two lanes entering a roundabout in this location is not a safe design. The inner lane that is stamped concrete, to be used as a second lane, would not be clear to the drivers. This inner lane is typically a raised apron that can be mounted if necessary to allow occasional longer vehicles that cannot turn thru the roundabout radius to have sufficient room to maneuver thru the roundabout on the rare occurrence that it is necessary. Using one of the two lanes in the roundabout as storage for the parking control booth is not advisable. What happens to the vehicle that is coming from the west on Woods and wanting to merge into the booth’s queue?

   **Administration Response** – Administration agreed to re-evaluate the round-about and asked that Morris Architects review the recommendations of the consultant. Discussions were then
held with the appropriate stakeholders on campus regarding this recommendation. Modifications were made to the plans and were adopted for construction.

Mode of Travel – Bicycles
There is an opportunity for bicycling to play a much larger role in campus transportation at Texas State. Several factors are seen as distinct advantages and can play a large role in increasing bicycle usage and thereby reducing demand for campus parking and transit shuttle services:

- **The campus layout is compact and conducive to bicycle travel.** The main campus facilities extend about 1.5 miles east to west and 0.5 miles south to north.
- **At least 6,000 students live within a 10-minute bike ride (about 1 mile) of campus,** making door-to-door trip times shorter than driving or taking the shuttle to campus.
- **Budget-conscious students are looking for choices,** such as less-costly alternatives to driving and parking on campus and more timely alternatives to the transit shuttle.
- **The city of San Marcos indicated their strong support for bicycling** and has added numerous bikeways as they repave and reconstruct city streets. The city’s standard street design includes bikeways. Also, they published a city bike map in 2010 and maintain an online bike map at https://sites.google.com/site/cityofsanmarcosbicyclemap/.
- **Texas State can build on the momentum of the existing bicycle cooperative (known as the Bike Cave) operated by Auxiliary Services.** The Bike Cave repairs donated and abandoned bikes for sale, teaches bike repair to students, and provides access to tools and equipment. Bike Cave employees also teach bicycle safety courses and help install bike parking racks on campus.

4. **Work with the City of San Marcos to provide better bicyclist access from east of campus including a bike lane along Aquarena.**

Existing campus master plan documents indicate that the majority of students and faculty access campus from the east (Figure 1). There are several efforts underway to provide better bicyclist access from east of campus (Aquarena Springs Drive and Post Road area), including an off-street route behind Aquarena Center (accessed from Bert Brown Street) and another off-street route that bisects Sewell Park and terminates at the University Drive signalized pedestrian crosswalk. These off-street routes avoid the high-speed, high-volume car traffic along Aquarena Springs Drive; however, they are somewhat indirect and will have to be signed appropriately so that bicyclists can follow the correct route. Also, the off-street route through Sewell Park could introduce additional conflicts with pedestrians on crowded paths.

A direct route along Aquarena Springs Drive should be considered as a longer-term addition to the bikeway network. The bottleneck that currently constrains this route is just prior to the intersection with Sessom Drive/University Drive: the university-owned Clear Springs Apartments (which currently protrude into the street right-of-way) and bridge over the San Marcos River. However, if the Clear Spring Apartments are ever removed, there is an opportunity to provide a separate bicyclist/pedestrian bridge just north of the existing bridge. The bikeway along Aquarena Springs Drive could be on-street bike lanes or a two-way separated bikeway placed north of and outside the curb line.
Figure 1. The majority of students, faculty and staff access campus from the east (2010).

Administration Response – Administration agrees with the recommendation. The City of San Marcos already has plans to build a bike path along Aquarena Springs Drive off the street.

5. Provide better east-west campus bikeway connectivity. Once students and faculty are on campus with bikes, they need the ability to circulate within the campus. The ability for circulation is especially important on the west-east axis, as this is the widest dimension (1.5 miles, a 15-minute bike ride). The east-west bikeway connectivity is currently hampered by several discontinuous one-way streets and steep topography. Further, east-west bikeways can serve as a convenient alternative to bicyclists riding on the already-crowded Quad and the narrow accessible ramps. If the existing one-way operation is preferred for motor vehicles on the following streets, a contraflow bike lane (Figure 2) should be provided on:

- **Woods St** between Guadalupe Dr and Edward Gary St
- **LBJ Dr** between University Dr and Bobcat Trail
- **Guadalupe St** between University Dr and Woods St
- **Vista St** between Comanche and North St/James St
- **Pleasant St** between LBJ and Sessom Dr

Figure 2. Contraflow bike lanes provide connectivity in a one-way street network (Madison, WI).
If these one-way streets are converted to two-way motor vehicle operation, then bike lanes in each direction should be considered as part of the standard street design. To ensure continuity on the north side of campus, a bikeway should be provided along Matthew Street (currently closed east of the Matthew Street Parking Garage to LBJ Drive) and/or Pickard Street (also currently closed to motor vehicle traffic).

**Administration Response** – While Administration supports providing east-west bicycle connectivity, in light of reduced funding it is unlikely we will pursue this during this five year update period.

6. **Adopt Complete Streets Policy for campus street design.**
   As part of the Campus Master Plan update, Texas State should adopt a *Complete Streets* policy that provides biking and walking facilities as a standard design detail on all campus streets. *Complete Streets* policies reverse the traditional car-centric street design philosophy that requires traffic engineers to justify why biking and walking facilities should be provided (often at locations where most people do not bike or walk because they feel the lack of facilities makes it unsafe). Many cities and state DOTs in the United States are adopting *Complete Streets* policies (see [http://www.completestreets.org/](http://www.completestreets.org/)). The city of San Marcos has a *Complete Streets* policy (although they do not refer to it as that), in that their standard street design template includes bike lanes on all new or reconstructed streets. The city of College Station has similar *Complete Streets* design standards (Figure 3), as do numerous other cities in Texas.

Figure 3. Many cities are adopting Complete Streets design standards that include bike lanes (College Station, Texas).

![Complete Streets Diagram](image)

**Administration Response** – Administration does not support adopting this policy for this five-year update in light of scarce resources and the need to prioritize those resources to other areas such as bus and parking.

7. **Do not forget the details to encourage biking as a safe and convenient alternative.**
   There are numerous details that help to encourage bicycling and make it a safe and convenient alternative to driving. Several of these details are already being implemented, including bike racks on buses and convenient bike parking on campus. Others include:

   - Bike tire channels on steps – The San Marcos campus is a maze of steps, which serve as hurdles or barriers to bicyclists. In many cases, bicyclists take the “path of least
“resistance” and ride their bikes on accessible ramps. Enforcement only will probably not work. The most effective approach is peer pressure or legal enforcement AND easier access on stairway. Texas State should retrofit bike tire channels (see Figure 4 for example) on designated steps to encourage bicyclists to push their bikes up steps rather than ride on the accessible ramps. Transportation Systems follow the three E’s: engineering (design it for all users – stairs and channels), enforcement, and education (develop an information campaign about accessible ramps, put it in the newspaper, develop a policy that states bikers would be banned from campus if they continue to use the accessible ramps, seek the assistance of the student bike club to spread the message).

Pavement stencils - Place at the entrances of those accessible ramps that are used most often by bicyclists or skateboarders.

Figure 4. Bike tire channels make it much easier to push bikes up and down steps (Bremen, Germany and Seattle, Washington). Also used on the University of Connecticut campus.

Administration Response – Administration does not approve the bike channels or pavement stencils.

Model of Travel - Pedestrian
The Texas State campus at San Marcos is already a compact, walkable campus (despite the topography). The campus maintains a natural setting that is consistent with being the gateway to the Texas Hill Country. Although crowded during peak times, the Quad is an intimate public space that provides plenty of shade on hot sunny days. It appears that many Texas State students do currently walk to most destinations on campus, and some appear to view the challenging topography as a healthy workout. In summary, the current campus environment is quite favorable to walking. However, there are recommendations that, if implemented, will help to improve pedestrian safety and convenience.

8. Provide raised pedestrian crosswalks or other signalization to improve pedestrian safety. There are several pedestrian crossings around campus that could benefit from raised pedestrian crosswalks. These raised crosswalks improve pedestrian safety by slowing motor vehicle traffic.
and giving a visual priority to pedestrians. Raised crosswalks are already in use at several campus locations.

**Administration Response** - Administration supports raised pedestrian crosswalks and/or other signalization to improve pedestrian safety. Locations will be based on high pedestrian areas where accidents have or are likely to happen.

9. **Work with the City of San Marcos and TxDot to consider an exclusive pedestrian phase at Aquarena Springs Drive/University Drive and Sessom Drive Intersection.**
   This intersection and the nearby Sewell Park crosswalk are some of the busiest pedestrian crossings in the CAMPO region (see [http://goo.gl/nIVK](http://goo.gl/nIVK)). A traffic engineering study should investigate the feasibility and effectiveness of an exclusive pedestrian phase at this intersection. An exclusive pedestrian phase is a signal timing in which all motor vehicles are stopped, and all pedestrians may cross during this time, even diagonally across the entire intersection (see Figure 5 for example). This signal timing strategy is often used at intersections with high levels of pedestrians and turning traffic. One of the disadvantages is that sometimes pedestrians will have a longer wait for this exclusive pedestrian phase.

   Figure 5. An exclusive pedestrian phase permits all pedestrians to cross at once, even diagonally (Toronto, Canada)

   **Administration Response** – Administration supports Texas State working with the City of San Marcos and TxDot on this recommendation.

10. **Acquire land northeast of campus for a satellite commuter lot.**
    Regarding the location of new parking facilities, whether garages or surface lots, the best location continues to be on the northeast side of the campus along Aquarena Springs. The majority of the housing facilities (university owned and private) are in this area and the majority of the commuter travel is coming from I-35 north. The university should also look at a location further south along I-35, perhaps in the area of interchange of South Guadalupe and I-35. There is also a vacant triangular piece of land just south of the baseball/softball fields at the intersection of CM Allen Parkway and the frontage road on I-35. One possibility would be for it to be a shared lot for Texas State and the San Marcos transit during the week days and available
for the users of the park during evenings (when most ball games are played) and weekends. This location could be served by transit to the recommended bus terminal on the south side of the campus as well as by bicycles using the bike lanes on CM Allen Parkway. The University should consider publicizing CM Allen Parkway as a gateway in to the campus.

Administration Response – Administration supports acquiring land and will begin identifying appropriate areas. Administration learned that commuter rail may only be eight years away. If this is true it might be more prudent for the university to lease land for commuter lots. This will be a major factor in identifying the locations for commuter lots.

11. **Work with the City of San Marcos on the design of the railroad overpass on Aquarena and promotion for funding.**

Aquarena Springs is the primary route between the campus and I-35 for traffic demand that is heading north on I-35 towards Austin. Residential locations for students, faculty and staff indicate that this direction is the predominant direction of approach for trips coming to campus. Consequently, the majority of the traffic going to/from the campus and east-west local San Marcos traffic not destined to the campus must pass through the signalized intersection of Aquarena Springs, Sessom and University. Not only do the automobiles and trucks pass through this one intersection, but the majority of the campus bus routes also must pass through the intersection to serve the multiple student housing facilities (university owned and private apartments) located east of campus and the primary bus terminal (Quad Bus Loop) on North LBJ. Further limiting the available capacity is the at-grade crossing of Aquarena Springs and the Union Pacific railroad. This Union Pacific railroad is a major freight corridor between Austin and San Antonio with multiple trains passing through San Marcos with lengths as long as 80 cars. Discussions with staff at the City of San Marcos revealed the grade separation of this crossing is planned for letting to contract in 2013 and open for traffic in 2015. This improvement will allow for significant expansion of the transit service to the Bobcat Village lot and the multiple apartment complexes located in the Aquarena Springs corridor.

Administration Response – Administration agrees that Texas State should continue to work with the City of San Marcos on the design of the railroad overpass.

12. **Reconsider proposed locations of parking garages in the Campus Master Plan Long Term Plan. Identify more appropriate locations for parking garages and/or surface lots, for commuters and as new buildings are planned, keeping access and egress in mind.**

Administration Response - Administration supports this recommendation.

13. **Review transportation conditions, areas of concern, and recommendations in report from Paul Hamilton, Auxiliary Services.**

A few of the recommendations are listed here: Construct ADA crosswalks where needed (e.g., on southwest side of Wood at Guadalupe Street). Rebuild crumbling bus stop infrastructure on south side of University Street at entrance to Sewell Park. Consider in-pavement flashing reflectors and flashing signage that is manually activated by pedestrians at certain crossings. Removal or redesign (cantilevered shelter) of bus shelters at the Quad Bus Loop to expand the

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walking and standing area for pedestrians, increasing pedestrian mobility and safety. Install bus route signage and wayfinding signage at Quad and Student Center bus stops. Install bus wayfinding signage and bus stop signage across campus and in the City of San Marcos. Reconstruct bus stop shelters to meet campus architectural standards. Consider relocation of garage entrances to Pleasant Street garage to eliminate pedestrian, bicycle, bus and vehicular interactions.

Administration Response – Administration supports incorporating some of the recommendations in the Master Plan Update.

Additional Information from the Consultants

As University enrollment continues to grow, and assuming we have addressed our organizational issues, what would you recommend we should do to address increased parking capacity needs? You addressed transit capacity by stating that we need more buses and more service hours but didn’t address parking. For example, should we build more garages but find another way to pay for them? Should we build more surface lots and if yes, where should they be built? Should we build more lots away from the campus and provided point-to-point bus service? Which direction in the City should this happen? Or any other recommendation you have that I didn’t list?

I (Bill Martin) discussed this with others in our office and offer the following:

1. TDM program: ride-matching/carpool/vanpool?); Guaranteed Ride Home/Emergency Ride Home; basic bike amenities
2. Surface lots on existing bus routes (or immediately adjacent so a detour would add minimal cost & travel time)
3. New lots: surface or garages. In this case you would have to do the cost/benefit calculation comparing the cost of ongoing transit service with the debt service on the garage. It might actually be most cost-effective to build a large deck on top of a surface lot already along the existing routes rather than build new surface.

There are only two ways to pay for the parking garages, either thru the overall parking fee structure for the campus or using metered parking fees. In any case, it’s is difficult to cover the typical monthly debt service for a parking structure, usually about $150/month per space. Parking needs to be look as a system as a whole (on-street, surface lots, garages, etc...) and the financial plan will have to balance the costs and revenues. In many cases the fees for close in on-street and surface lots must subsidize the parking garages.

One option for getting additional funding for the parking garages is to designate a garage as a multimodal facility. As San Marcos becomes an urbanized area and eligible for Federal Transit funding, it may be possible to construct a garage shared with the City of San Marcos and operating as a transit hub or center. The University of Alabama did this for a parking garage constructed on their campus.

One other note on transit, as much as possible, I would try and provide transit service to the concentrations of off campus student housing. If you can keep the user from even using a car for any part of the trip then obviously there is reduced need to construct parking facilities. Ideally you would
like to provide as many alternatives to driving and parking as possible. As you’ve alluded to, the worse case is to incur debt to construct remote lots and then also have to pay for the operating cost of transit to serve them.

I’m (Shawn Turner) probably the least qualified to answer this question, as my experience doesn’t extend to campus parking. But my observations from the 3 days was this: building more garage parking close to campus is at odds with making campus access more multi-modal. Several times we heard that the parking folks want to bring more cars into campus garages to pay debt service, while the shuttle operators say that this vehicle traffic (and of course the train) wreaks havoc with shuttle schedules, and the circulating car traffic also creates busy streets that discourages biking and walking. From my experience, I was surprised to see as many parking garages on campus as you currently have. Here’s one way to benchmark TEXAS STATE campus parking: ask Rod to give you the ratio of garage parking spaces to surface parking, both internal to campus and on the periphery. My observation is that Texas A&M has a bunch of surface lot capacity on the periphery, and then a few key garages.

I (Rod Weis) was asked for my advice on how Texas State might finance capital improvements in the parking program.

1. The first (and obvious answer) is through increased permit fees. While fee increases are unpopular, it has been my experience that convenience is at least, or maybe more important than price. Texas A&M faced this problem in 2002. The fees had been held artificially low for years and the debt service on the fifth garage finally forced the issue. In response, I developed a comprehensive 5 year (updated annually) financial plan to address debt service, operating costs, and maintenance. This plan was communicated to the entire campus community and constituents agreed that they were willing to pay more for the convenience of parking that was within a reasonable distance from their office. It was also recognized that the fee increases had a much greater impact on those who could least afford it so the university agreed to increase base salaries on all who made $35,000 or less per year to cover the increased costs for parking. We experienced increases of approximately 8% per year on average with reserved spaces increasing the most. Surface spaces increased from $175 to $225 in three years and the same rate was charged for similar services i.e. un-gated surface, gated surface, garage, etc. There was fear that the higher garage rates would force people to move out of garages and park in surface lots but this was not our experience. This did not happen and we found that students were willing to pay the high garage rates if the garage was located close to their residence hall. Garages are still at maximum capacity because we “back-fill” garages with student requests when all faculty and staff have been accommodated. We did see a number of people move from reserved to unreserved spaces the first two years. In conjunction with the rate increases we also implemented a lot specific system and allowed everyone to choose which location(s) they preferred and the level of maintenance to our facilities was dramatically improved. The improved services and knowing five years in advance what the rates would be has been successful in providing better service to individuals and allowing us to make sound long-term decisions.

2. Increase the customer revenue base to help meet debt service obligations – I worked hard here at A&M and at Georgia Tech to increase revenue for the system from sources other than the permit holders. This included maximizing revenues from designated visitor parking, charging a daily rate for “guests” invited to the university by departments, everyone paying for the specialized services they demanded, and managing special events (especially Athletics). There is
a good deal of revenue that can be realized by charging market rates for ALL space on campus on game days, charging for arts performances, conferences, etc. It has always been my philosophy that it is unfair to those supporting the system with their user fees whenever you allow others to use the facilities for free.

3. Investigate ways to have the university support any ancillary services that they can legally support including utilities, signs, systems etc. that can reduce the burden on the parking system to allow them to pay for the next garage.

I feel the key is first identifying projected need for garage space that will at least accommodate faculty, staff, and grad students. Based on that need, you can then begin drafting a 5 year strategic and financial plan so you can project what types of increases might be needed to build enough space to effectively operate the campus. At that point the decision will have to be made if the increases are sustainable into the future in order to meet all of your debt obligations.

My (Nancy Nusbaum) original question had to do with capacity – the number of parking spaces needed if we continue to grow. Shawn suggested that I ask you to provide us the ratio of garage parking space to surface parking, both internal to campus and on the periphery. Is there a magic formula that we could use to determine what the ratio should be? I didn't think there was, so perhaps Shawn is suggesting that we ask you what Texas A&M’s ratio is.

Good question and I (Rod Weis) will attempt to give you my best advice based on my experience! It is my opinion that lot versus garage space is not a factor. Total available space located in areas that are viewed as convenient is the main driver from a service perspective. Permit price is the main driver from a financial perspective but I believe that you could double your rates over a four to five year period and you would see no significant shift to alternative modes. People will complain but if they know that the funds are being used to add capacity and improve the system, they will understand why the increases are needed.

There are a number of questions that must be answered before you can determine how many spaces will be needed if you continue to grow

1. DO WE CURRENTLY HAVE SUFFICIENT SPACES, IN WHAT ARE PERCEIVED AS CONVENIENT TO, AT A MINIMUM, SERVE OUR FACULTY, STAFF, AND GRADUATE STUDENTS? (the answer to this question should be based on input from your various constituent groups). This becomes your benchmark.

2. IF WE HAVE TO INCREASE PERMIT RATES IN ORDER TO FUND EXPANSION, HOW MANY PEOPLE WILL SWITCH TO ALTERNATIVE MODES? This is VERY difficult to predict and I would not devote a lot of time or worry to coming up with a precise calculation. I say this because we had planned for a 2% to 3% decrease in permit sales with every 10% increase in permit prices and the reality is that the number of permits sold actually INCREASED! We found that the increase was a direct result of allowing customers choices as to where they could request a space, more effective control measures (enforcement) put in place, limiting the number of permits sold in a given lot (lot specific versus hunting license), that ensured a place to park, and the consequent perception that a permit was a much better value now than it had been in the past.

3. DETERMINE A REALISTIC “OVERSELL” RATE. Again, the “oversell” rate varies from lot to lot depending on primary demographic group in the lot and the number of spaces in the lot. Our oversell rates vary from 0% (small lot – less than 25-30 spaces) to 100% in a 3700 space garage.
that is primarily used by students. If you don’t have the actual occupancy rates a good rule of thumb system-wide is 20%. So if you have 5,000 spaces on the main part of campus you should be able to sell 6,000 permits. The absolute KEY, however, when switching to a lot specific system is to BE CONSERVATIVE! I would start with 0% in any lot less than 50 spaces, 5% in lots of 50 – 100 spaces, and 10% in all other lots. After peak occupancy is determined (occupancy varies by day due to class schedules), sales are based strictly on occupancy in any given lot.

4. DECIDE ON A CAMPUS PHILOSOPHY CONCERNING PARKING. For example, Texas A&M has a “no growth” policy in terms of number of spaces but we actually have a surplus of space, though not all are “conveniently” located. This is in contrast to some urban campuses like University of Minnesota, U of Colorado, U of Wisconsin where their emphasis is on providing more access to alternative modes. From an environmental perspective it is the politically correct thing to do but from a customer service perspective it is a hard sell because you are not providing the services people demand. I have heard a number of deans and department state that the lack of convenient parking can be an obstacle when trying to attract the best and brightest faculty and graduate students. This strategy is often touted by transit operations as “cost avoidance” because you don’t have to fund garages BUT oftentimes the cost of providing sufficient transit services is greater than the amortized cost of a garage over twenty or thirty years. The other financial advantage of building a garage that is often overlooked is, when you have retired the debt, some of the fees generated by the facility can be used to subsidize and leverage the next facility if another is needed. BOTTOM LINE TO ALL THIS IS THAT, IN MY OPINION, THE ADOPTED PHILOSOPHY IS CRITICAL IN ORDER TO DO ALLOW FOR EFFECTIVE LONG-RANGE PLANNING!

5. USE PROJECTED GROWTH RATES TO DETERMINE FUTURE PARKING NEEDS.

6. USE THE DATA TO DEVELOP A LONG-TERM INVESTMENT STRATEGY FOR PARKING FACILITIES.