

# A little light on the Metro deal

By David Crossley  
President, Gulf Coast Institute

While Metro's new transit plan has generated a lot of passion and anger, I believe the new plan is a significant improvement over the referendum version.

The loudest issue seems to be that Metro is not to be trusted because in 2003 we voted for something and somehow this new arrangement isn't it. There is also a lot of suspicion and cynicism about the regional politics of the deal. This latter issue is worth worrying about, and goes to the heart of why it is so difficult in the Houston region to do good work and improve the quality of life. That is a long discussion for another place. But the idea that we're getting something completely different from what we voted for is not accurate.

For well known reasons, Houston was in danger of getting no more high-quality transit than we have right now. It is essential to keep that reality in mind when judging this plan. The necessity to come up with something creative that still delivers the promise made in 2003 was paramount.

A deal was made, and some light rail vehicles and electric power infrastructure were taken off the table temporarily and replaced with the hottest transit idea swirling around the nation. The plan still delivers every inch of rail in the street we were promised, in precisely the same places, plus an extra 7.2 miles. There is perhaps no more critical piece of this plan to understand: All the miles of light rail track we voted for we will get, and more. Putting that rail in the ground secures right of way for high-quality transit, regardless of whether we begin using it by putting less expensive but entirely adequate vehicles on them to begin building ridership.

Before we begin to analyze details of the plan, however, we need to step back and breathe deep and consider what it is we're trying to do with this plan and all the plans that are connected to it.

## The underlying need

The longer I study the mobility issue - which I suspect may be at least as much as any other person in our region, if not more - the more convinced I am that the key to livable cities with a high quality of life is an efficient, convenient, safe, extensive transit system, beginning with the urban areas. While I may have personal preferences for certain kinds of technology, I am more interested in

where transit is deployed, how much of it we can get, how soon we can get it, and how good the service is.

Transportation infrastructure is the most intrusive land use. The paved ground it occupies is only the beginning. As soon as such infrastructure is contemplated, development grows up around it and claims much more land.

If one is aware of the delicacy of the life-sustaining free services provided by the natural environment in which we humans choose to make our homes and live our lives, one develops an interest in

conserving as much of that as possible. Additionally, many people care about the beauty, recreation, adventure, and spiritual benefits of the natural world.

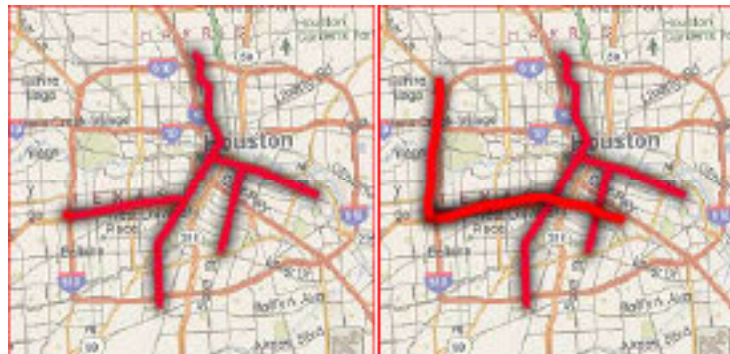
This concern isn't about the land, it's about the people, the human beings. Like it or not, we are organic life-forms that are utterly reliant on the web of nature to keep us alive from moment

to moment, let alone for decades and generations.

People interested in health and survival seek a transportation infrastructure that occupies and impacts the smallest amount of land possible, and that intentionally avoids sensitive environmental areas. If the type of infrastructure chosen supports primarily cars and trucks, it requires massive amounts of pavement, including for parking, which tends to produce about six spaces for every individual plus a great many driveways.

Overwhelmingly, that is the kind of infrastructure we have in the Houston region. We expect to add 3.5 million more people in the next 20 or 25 years, and to accommodate them we plan to build around 12,000 miles of new roadway, which will directly pave at least 30 square miles of additional land.

If all the land needed to provide housing, jobs, schools, fire stations, police stations, entertainment, shopping, parking, and all the rest is developed on suburban land at the same density as Harris



2003 installed rail plan (left), new plan (right)

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*Disclaimer: The information about the Metro plan comes from published Metro documents or, in a few instances, from Metro executives. There is currently very little published information about the new plan, and it is possible that there are mistakes in this analysis as a result. Further, the author acknowledges, as always, that he is perfectly capable of making his own mistakes. Corrections are welcome at [crossley@gulfcoastideas.org](mailto:crossley@gulfcoastideas.org).*

County, it would require more than 1,500 square miles of new land to be taken out of service.

Transit requires a fraction of the land use, but more importantly it produces a different kind of development that uses much less land. Research and observation show that roads tend to produce sprawling, land-consuming development, and transit tends to produce compact, land-conserving development.

Not everybody wants to move around on transit or live in places like Paris and Washington DC. But the ones who do should be encouraged with the best possible transit system, because they are actually reducing congestion, by definition. They aren't riding around the streets and roads by themselves in cars and trucks.

Clearly, we need roads and we will get plenty of them. But we also need transit and better strategies for land use. There is a growing body of thought-provoking research and strategic planning about cities and towns. We need to know about this work, and we need to study and analyze how the world is changing. From this study, we need to produce several scenarios about how the essential trends might play out in the Houston region so our decision makers can see how to prepare for all future scenarios, as well as choose a general direction for development over long periods of time.

The first question in planning transportation infrastructure has to be "How can we better use what is already there?" which is what a bus system does. The HOV lanes were always seen as serving mostly as transitways. Houston has had for many years the best HOV transit service in the nation.

Local bus service demonstrates the approximate limit of being able to provide service in the existing road infrastructure. At this level, transit is producing very annoying friction with the car and truck system, not to mention providing a quality of service that almost nobody is happy with. Local bus service tends to be largely about need, serving only a small fraction of the potential transit ridership should we choose to serve the next big market, those who want to use transit. To deliver more and better transit in very large cities - and Houston is on the way to overtaking Chicago to be number 3 in the US - new infrastructure is needed.

The Main Street light rail line begins to reach out to those people. Now the critical need is to extend that service. At this moment we want as many miles of high quality transit service as we can get as soon as possible.

The ultimate system will have many components, including most importantly a sense of how land is used and how it might be used better to improve the quality of life - everyone's top goal. It needs to first connect dominant activity centers, then the densest residential areas, then branch out in many forms to smaller towns, villages, and neighborhoods.

### **Bus rapid transit - the key to the plan**

The new Metro plan adds significant numbers of miles of high-quality transit to the plan we voted on. But: for some period of time, most of those miles will have \$1 million rubber-tired cars running on them, not \$3.5 million rail cars. Keep in mind that the Paris Metro runs on rubber-tired cars, with a smooth, quiet ride. These vehicles we will use have the unfortunate name of Bus Rapid Transit, or BRT. This is what people are really complaining about. They were



*Bombardier GLT bus in Nancy, France*

promised rail cars and instead they're going to get buses.

But these are not your father's buses. They are designed to deliver the same quality of service as light rail at a portion of the cost. BRT is the most innovative product in transit today. They are low-floor vehicles, like our light rail cars, they have multiple doors that can be on either side, their internal layout is similar to light rail, they have sophisticated electronics and communications to control traffic lights or enable potential riders to know when the next vehicle is coming, and they can even be driverless. In the Metro plan, they will run in their own dedicated fixed guideways, all of which will have rail in them in the same basic design as the Main Street line, with the same kind of stations.

Metro has indicated it will select clean diesel/electric hybrids with very low emissions. People like to say light rail has no emissions, but their power source is largely coal-burning electric plants. Electricity is not a pollution-free source of energy, by any means. Further, the system we use now has produced a lot of overhead wires. Most people don't like overhead wires.

Each generation of these new BRT vehicles is sleeker and more refined than the last. One big question that should be on the table is whether Metro is reaching far enough into the future with the particular vehicle they're showing us right now. There are more advanced vehicles coming online right now and they more and more resemble light rail cars. Because this is probably the biggest BRT buy in America, Metro could set some new standards and attract a lot of international attention to Houston.

This vehicle now being shown was pretty much the breakthrough design that motivated so many manufacturers to move quickly toward total rethinking of what "bus" means. It's also the one that got a lot of transit agencies thinking in BRT terms. Almost everything people dislike about buses isn't about buses but rather is about bad design, bad service, bad maintenance, and so on. These new vehicles are designed to change that paradigm.

The trade-off today is higher operating costs and a shorter life span for the vehicles. It is also argued that only rail can attract developers to produce the denser, more urban housing and commercial facilities whose tenants can get the most benefit from transit and who can contribute to growing transit ridership.

It is often suggested that BRT can create ridership at less cost and then can be upgraded to light rail when needed, but unless the

tracks are already in place a massive service disruption has to occur. This approach that Metro suggests - laying all the track first - means that the interruption would at worst be brief as the tracks are uncovered. Since the buses can actually run in the street without the guideway, they could presumably continue to operate, although not as fast as in their guideways. The overhead power lines can be deployed while the bus is still running.

This also has the effect of calming the fears of some developers that it's not safe to plan development around bus stops because it's so easy to move them. Rail is such a significant investment, it's assumed it won't move. To add to that commitment, the BRT will have stations like the light rail stations.

Theoretically, BRT could run in the guideways and never be replaced by light rail, even while transit-oriented development takes place around the stations. As BRT technology advances, we are seeing vehicles introduced that can handle 200 passengers and more. In Los Angeles, the peak hour time between BRT vehicles is about 90 seconds (or at least that's the goal), so enormous capacity is possible with these vehicles. If more capacity is not needed, then only operating and maintenance costs might work in favor of switching to light rail.

The great value of this BRT move is that it allows us to add more miles of high-quality transit service sooner. In fact, Metro's press packet lists its principles, and one of these is "sooner rather than later," while another is "build more rapid transit rather than less." Since the cost of new transit is usually expressed in cost per mile, one goal that should be obvious is to get the most miles for the buck. And in Houston, it's becoming clear to more and more people that we need much better transit and as much of it as we can get, as soon as we can get it.

People may not think so now, but they are going to like this service. That is, they will like it if Metro adheres to the concept of high-quality service. If they build it, we will come, and once we do we're going to want a lot more of it. As light rail vehicles are brought in to replace the BRT, those can then be used to extend service to other places. This is forward-looking and practical in market terms.

### **New light rail service**

There will be two extensions of the light rail system by 2012. One will go north from the Main Street line for just a few blocks and terminate at a new "Intermodal Facility," which would link it to the Main Street light rail, Northline BRT, 290 commuter rail, and a number of HOV lanes. For some time there has been an effort to move the Greyhound bus terminal to that facility.

The other extension of light rail service is partly the "Westpark" line that was in the referendum and promised by 2012. It will indeed be in service then. However, it won't stop at Main Street, but will go east to bring Texas Southern University and the University of Houston into the system. This means the Third Ward will have a light rail connection to Downtown, the Medical Center, Greenway Plaza, and Uptown/Galleria. No other large group of neighborhoods will have this much access to light rail service, not to mention the BRT it will get straight into Downtown and the new Signature Bus that will connect it to the Medical Center.

On the new map, the west side rail line is in precisely the same

place it was before (although it's unclear whether it now stops at South Rice instead of going on to the Hillcroft Transit Center). But Metro executives say that they are looking hard at taking it down Richmond, rather than in the right of way they own adjacent to the south side of the Southwest Freeway. This line will go through preliminary engineering "this summer," and the exact route will be determined then.

The "Program Scope" document Metro published recently simply talks of the line "continuing west to the Uptown Area, connecting to the Greenway Plaza and Uptown/Galleria activity centers." The line on the map still appears to end around South Rice, but south of the Southwest Freeway, pretty far from the heart of Uptown.

How this actually works is a serious question. Travelers getting off an urban transit vehicle should find themselves in urban places, at useful destinations. It is critical to agree that the transit stops should be in the hearts of each of them, not in parking lots or along freeways at the edge. This Westside line is compromised by conflicting pressures from one side to make it be a more of a service for suburban commuters - and presumably shoppers - from the southwest and from the other to make it part of the urban system that I will discuss a little later on.

A look at the original much-touted Dallas light rail line should give pause here. Very few of the stations on that line actually sit in urban places. Most put the exiting riders into large parking lots or at the edges of freeways. Watching the people who get off - and on - at these stations, it is often difficult to imagine where they are going or coming from. One station very close to Downtown called City Place gives riders the choice of going into a large office building on the other side of a major boulevard or coming out of the station at the edge of a field several blocks from a hot new urban center called West Village. I didn't witness one person, other than myself, who went from the transit station to the Village. People either arrive there by car or on the historic McKinney Street streetcar, which does provide service to the center.

Outside the urban core, which apparently is suffering from serious excess office space, only the Mockingbird and Plano stations are actual places. Mockingbird is an all new development that is not exactly transit-oriented development but rather is transit-adjacent development, and Plano is a small town that already had a historic and successful downtown that it has greatly enhanced around the train stop.

The expense of rail transit would seem to require that it only be deployed where there is significant job and residential density. The edges of freeways and large park and ride lots do not qualify, by definition. Houston's westside line should have stops in the hearts of Uptown and Greenway Plaza as a fundamental requirement, and certainly not expect riders going to the Galleria to transfer to another vehicle half a mile from where their destination.

### **Suburban commuter rail**

The light rail and BRT lines form part of the basis of the urban transit system. This plan also begins the suburban fixed guideway transit system by adding 28 miles of commuter rail, the main purpose of which is to provide suburban dwellers with an alternative to driving in traffic at peak hour.

Presumably the two commuter lines, one south to Missouri City and one northwest out 290 to Cypress, were part of the deal that was necessary to secure the support of the recalcitrant members of the Congressional Delegation.

Commuter rail is usually locomotives pulling a line of cars in dedicated right of way, usually sharing the rails with freight trains. Many regions are becoming interested in the DMU (Diesel Multiple Unit) idea of a self-propelled passenger car that is also capable of pulling additional cars. This kind of technology has been discussed in Houston, and would be an innovative breakthrough if used here.

Both lines would operate in existing freight train right of way. It's argued that the lightly used 290 freight line will quickly enable service to be established there. But some at the core of the 90A discussion worry that intensive study is suggesting great difficulties there, partly because it is a very busy freight corridor and the company that owns it is hesitant to introduce passenger service, which must run on tight schedules several times a day.

Another big issue is the number of grade crossings along both lines. This question is receiving a lot of attention even without the additional trains commuter service would bring. Curiously, just as Metro and supporters are working to introduce passenger service to freight rights of way, powerful business interests are mulling ways to move the existing freight lines outside the busy central area to reduce all the friction and human damage they often bring.

A transit line out 290 first appeared in the 290 highway expansion study a couple of years ago, and since has dominated commuter rail discussion in the Greater Houston Partnership's transit subcommittee. Enormous numbers of people live along the line, and the intensity of development in that quadrant of the Beltway is ferocious.

The 90A line seems intended to take service to places outside the Metro service area. Many forget that Metro doesn't cover the entire region, that there are borders to the service area, and the contributing entities that are contained in those borders may wonder whether this is the moment to provide service to non-member communities outside the border, considering how little money is available for transit. Relatively few people live along that line inside the service area, but large numbers live just outside.

It is also a huge question whether commuter rail should penetrate inside Loop 610, as the 290 line does and begin a dynamic that could reap damage to the urban neighborhood fabric, which is today trying to improve its quality, not give up its destiny for the cause of suburban expansion. Some engineers are arguing that the commuter lines might terminate at a new northwest intermodal center just outside the Loop, but the existence of unused rail right of way between the Heights and I-10 and into Downtown may be too appealing to ignore.

Commuter rail is a major precursor to what we now call sprawl. Houston may be the only metropolitan area in the US that is still encouraging sprawl, so perhaps the role of commuter rail in supporting sprawl is a desirable trait here, although Dr. Stephen Klineberg's recent Houston Area Survey indicates a tightly split opinion about that.

### **Signature Bus/BRT**

Very little has been said about the rest of the bus system, which

includes the Signature Bus express concept. As Metro describes it, Signature Bus is similar to BRT with the big exceptions that it has no fixed guideway and is essentially ordinary buses. It is what people think of as express service, making limited stops, and could have many of the electronics features of BRT, including the ability to change traffic lights.

The referendum plan first introduced this idea, with many miles designated on the map. The new plan offers 40 miles by 2012, but it is not clear if all the rest of this service will still be delivered by 2025. A small piece of the Signature service will connect the Texas Medical Center to the Third Ward BRT line, further improving transit service in that highly favored near southeast area. Another piece will extend south from the Uptown BRT line down into the Gulfton area (which is the densest part of the region and was not really addressed in the previous Metro plan) and to the 90A commuter rail line,

The Signature Bus lines appear have some politics behind the new priorities. For instance, the Westheimer/Westchase and Holcombe/Bellaire lines from the 2003 map are not show in the new plan for 2012 completion. This seems a little short-sighted considering that the existing Westheimer and Bellaire lines are the busiest in the current bus system. The new lines provide important service, but surely if Metro has the funds to build a commuter line to its southwestern border for commuters outside its service area it could find the money to also provide at least early Signature service to Westchase, which after all probably has more residential units in its circle of influence than most other places in the system, not to mention a huge number of jobs.

There has been little discussion or explanation of the Signature Bus concept, but it is clearly an important part of the strategy of slowly providing better transit service in corridors that over time may justify much better service, such as BRT or light rail.

### **HOV/HOT lane service**

The promise of beginning to provide two-way commuter service in the High-Occupancy Vehicle/High-Occupancy Toll lanes needs a lot more appreciation. Today, the park and ride commuter buses provide the fastest service commuters will ever see, albeit to a limited number of destinations.

It is a significant problem today that these buses only have fast runs going in one direction, which changes later in the day. The morning buses returning from the central city destinations back out to the suburban parking lots have to fight freeway traffic just like the cars and trucks and one result of that is they tend to be empty in that direction. This process reverses in the evening.

But the new paradigm for future freeway expansion is the Katy Freeway, which has four "managed lanes" in the middle, that are under the control of the Harris County Toll Road Association (HCTRA). These lanes are primarily intended to provide congestion-free travel to those willing to pay tolls. For the moment high-occupancy vehicles and transit can also use the facilities. But because Metro has lost control of its right of way in the Katy, it is likely it will over time lose control in all the existing HOV lanes, and will be at the mercy of the toll road authority, which is a competitor for money.

Metro's two-way service, in the best of worlds, will have to wait for freeway expansions to be completed, beginning with the Katy. If this idea can survive the ambition and power of HCTRA, which so far has operated without significant citizen input, it is hard to imagine why the fast, mostly nonstop service to multiple destinations would be replaced with some form of rail transit. Rail transit doesn't really allow the kind of express service that buses do, and therefore will have to make several stops between terminal stations, making it significantly slower than the bus service. Nevertheless, many people hate buses and are pushing for rail everywhere.

### **The urban zone backbone**

I have to say here that I believe the most important component of our future transit system is still not recognized in the plan. That is the strategy of connecting the six biggest, densest activity centers in the region with an urban transit backbone that is very fast. All of the transit system should emanate from the reality that Houston has not one urban center, but at least six, and each of the six has more jobs than downtown San Diego or Miami. Of course, I am talking about Downtown, the Medical Center, Greenway Plaza, Uptown/Galleria, Westchase, and Greenspoint. The speed with which some of those are growing in both jobs and residences is astonishing. A single transit backbone connecting those centers would be about 30 miles long.

I have made dozens of presentations about this to thousands of people and I have never encountered a Houstonian who doesn't agree with it. It becomes increasingly difficult to understand why this obvious idea, which I first encountered many years ago, is not in the center of the public discussion about transportation. Perhaps the reason is that the paradigm of a single center from which all else radiates is still dominant in Houston's planning circles, decades after it has ceased to be true. We are a vast metropolitan region with dispersed centers - "edge cities" as some call them - in which we plan enormous transportation expenditures for a form that doesn't exist anymore.

With freeway expansion costs now over \$100 million per mile, as the Katy Freeway is, it is clearly time to change the fundamental question from "How do we move more cars through this corridor?" to "How do we move more people through this corridor?" If we do that we might want to glance over at Shanghai at the 245-mile-an-hour train they now have running out to their airport - a 17-mile trip that takes 7 minutes. This elevated, magnetically levitated train, which essentially flies, requires very light use of right of way - eight feet or so, intermittently, for the posts.

If I'm at Greenspoint and I know that the car trip to Downtown is about 20 minutes at good times and could be 30 minutes or an hour - depending on who decides to roll a truck or whatever in the middle of the freeway - and I also know that there's a train there that gets to town in 6 minutes in safety and comfort, I certainly wouldn't have any hesitation about which to choose. Particularly if I knew that once I got to the station I could connect to a whole array of other transit services to places in the general district, as you can today from Downtown because of the Main Street light rail line.

This train could provide I-45 commuters, for instance, with a ride far faster and safer than cars or any other means now being

considered, while providing a section of the future highspeed, inter-urban backbone.

In that future, we see that the Main Street line provides local service between two districts, a vital role. This implies that the existing Main Street rail line is not a piece of that ultimate urban backbone, but is the basic local transit backbone for the districts called Downtown and Medical Center. The other five "cities" each need their own backbones and ribs and so on.

### **Conclusion**

However we look at the future, we are talking about a lot of miles of transit, sooner or later. For practical cost reasons, most of it absolutely must be non-rail vehicles. Bus Rapid Transit is perfect to begin to provide high-quality transit quickly and relatively inexpensively. From my point of view, the decision to begin to use BRT in Houston is the most important transit decision since beginning the light rail line - and may be significantly more important than that.

We need to recognize that whatever transit service we're envisioning right now is nowhere near what we will ultimately need and build. We are the creative pioneers of Houston's post-adolescent growth. What we decide matters.

The new Metro plan, if implemented as promised by 2012, will deliver 97 miles of transit instead of the 36 envisioned in the referendum. While this plan is more ambitious than the previous 2012 plan, nothing in the recent announcements addresses the rest of the referendum plan, which projected out to 2025, and that needs to be addressed. Metro has assured me that "The plan is still to implement METRO Solutions as originally planned." Originally, another vote was needed in 2009. Between now and then, there will be ferocious debate about the next phase, from 2012 to 2025. Let's hope that turns out to be as innovative as this new version. That's what we need.

*A magazine article about the urban backbone is available at <http://www.gulfcoastinstitute.org>*

*A map of the proposed new plan and a press release are available at [http://www.ridemetro.org/latest/releases/pro61305\\_I.asp](http://www.ridemetro.org/latest/releases/pro61305_I.asp)*