

MINUTES
STARTRAN ADVISORY BOARD MEETING
StarTran Conference Room 2
January 31, 2013

Members Present: Kim Phelps, Mike DeKalb, Don Herz, John Baylor
Members Absent: Stephen Speicher, Beatty Brasch, Linda Carter
Staff Present: Larry Worth, Brian Praeuner, Mike Weston, Scott Tharnish, Glenn Knust,
Connie Thoreson

I. REGULAR BOARD MEETING

Chairman Kim Phelps noted the Open Meetings Act and Patron Conduct Notice posted on the north wall.

A. Patrons to be Heard

None

B. Review/Action Items

- November 29, 2012 StarTran Advisory Board Meeting Minutes – A motion for approval was voiced by Mr. DeKalb and seconded by Mr. Baylor. The 11/29/12 StarTran Advisory Board Minutes were approved 4-0 (Mr. Phelps, Mr. Baylor, Mr. Herz, and Mr. DeKalb all voted “aye”).
- Star Pass - Price to Remain \$20 - Mr. Worth noted the Star Pass is a summer fare device which is good for the months of June through August and is for youth ages 5-18. Staff recommends the price be the same as last year, \$20. A motion for approval of the Star Pass remaining \$20 was made by Mr. Baylor, seconded by Mr. DeKalb, with a unanimous vote (4-0) in favor of approval. (Mr. Phelps, Mr. Baylor, Mr. Herz, and Mr. DeKalb all voted “aye”).

C. Operations Report

- Mr. Worth reviewed ridership from the Board Report noting paid ridership is up 1.2% year-to-date.
- Mr. Worth indicated the UNL extended service started in January with StarTran also providing evening HandiVan service during these extended hours. A map of the evening HandiVan service area was included in the Board Report.
- Mr. Worth noted that the Houck advertising contract is a five-year contract that now includes certain shelters for advertising. The 14th & “R” streets shelter is the first to be utilized for advertising. The advertising contract includes interior signage as well as exterior signs, banners and wraps, with currently five buses displaying exterior wraps.

Mr. DeKalb noted lower ridership on particular routes and asked if there are any specific reasons for the lower ridership. Mr. Phelps felt that the difference in number of service days could be one reason, and Mr. Herz suggested that year-to-date numbers may be a better measure later in the year.

Mr. Phelps clarified that UNL faculty, staff and students do not ride StarTran services free as there is a charge included with student fees and parking passes.

D. Other Business

- Peer System Review (report attached) – Brian Praeuner summarized his report with regard to peer systems and what they may be doing differently than StarTran that could result in higher ridership. He indicated that there is nothing in particular that stood out as to what StarTran could emulate in order to achieve more ridership. He noted that the peer cities that partnered with local colleges and universities (such as StarTran with UNL) generally had higher ridership. It was also noted that some states choose to fund public transit at a higher level making it possible to operate more service which results in more ridership. In response to a question, it was indicated that none of the peer cities have a Low Income Bus Pass Program, with Lincoln being the only one.

The Board suggested that Mr. Praeuner indicate on this report, by footnote, the adoption date of the \$17 31-day pass and the UNL student/faculty bus pass fee arrangement.

- Overview of Grid System (report attached) – Brian Praeuner summarized his report with regard to grid transit systems, noting that some large metropolitan areas, such as Los Angeles and Chicago, have implemented a grid system or a hybrid of the grid system along with a hub and express service.

The StarTran Advisory Board members complimented and thanked Brian Praeuner for both of these reports. It was suggested that these reports be updated once a year and placed on StarTran's webpage.

It was suggested, if there isn't already, a national central transit website be implemented for transit agencies to utilize in order to ascertain information on other agencies' policies and programs.

It was noted that the HandiVan scheduling suggestion submitted by Ms. Brasch was addressed by Mr. Worth with assistance from Mike Foreman, ATU President, and is included in the Board Report. Mr. DeKalb complimented and thanked Mr. Worth for his response to this suggestion.

Mr. Herz mentioned the inquiry by Dan Marvin with regard to StarTran implementing a shuttle service between parking facilities and the new arena. Mr. Worth indicated that a downtown shuttle service operating between the parking garages and the arena could be implemented as additional regular service, if funding became available. However, date specific shuttle service would be considered charters and would need to be submitted to private operators per FTA regulations.

Mr. Tharnish summarized the \$17, 31-consecutive day pass usage per the Board Report.

The phone application for StarTran patrons to utilize for alerts etc is being investigated by the City Law department in order to proceed with a Request For Proposal. It is expected to be completed by the end of June.

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Mr. Phelps indicated that the position of Chairman and Vice Chairman of the StarTran Advisory Board will need to be addressed at the next meeting, and Mr. Baylor noted that this would be his final term as a member of the StarTran Advisory Board. It was also recognized that two other Advisory Board members (Phelps & Brasch) will be term limited out in October, 2013. Ms. Thoreson will submit appropriate forms to notify the Mayor of the upcoming StarTran Advisory Board member vacancies.

E. Patrons to be Heard

None

F. Adjournment

The meeting was adjourned.

The next meeting is scheduled for February 28, 2013, 8:00 a.m. in the StarTran Conference Room #2.

Memo

Date: January 18, 2013
To: StarTran Advisory Board
From: Brian Praeuner
Re: Review of Peer Transit Systems

This memo is in response to the StarTran Advisory Board's request for additional information regarding peer transit systems. The StarTran Advisory Board on November 29, 2012 approved the FY 2011 - 2012 Draft Transit Surveillance Report. Included in this report was a Peer Analysis that showed an overview and comparison of StarTran's and the peer group's service characteristics. The Advisory Board also placed emphasis on researching information from peer systems that would explain differences in ridership compared to StarTran. In order to gain a full understanding of ridership differences the factors that influence transit ridership need to be explored such as: employment and income levels, auto ownership, public finance factors, route network design, fare levels, and level of service.

Summary of Findings:

- Those peer systems with high ridership have well established partnerships with local university or colleges
- Another factor for higher ridership of peer systems is the financial investment the city and the state allocates towards public transportation. Lexington and Anchorage, which are similar in population size to Lincoln have larger budgets as compared to StarTran's budget. This can be seen in the level of service provided. Those systems that provide higher levels of service, Sunday and night service all had higher ridership levels than StarTran.
- Route network design was not a factor for explaining differences in ridership between peer systems.
- Income, poverty, automobile ownership and mean travel time to work, when examined individually, were not factors for explaining differences in ridership between peer systems. Examining these factors together may provide assumptions for ridership differences. For example, Lansing and Tallahassee have lower household incomes, higher unemployment and poverty rates than Lincoln and higher ridership levels. When looking at population density and fares, for example, Lexington had the highest density and low fares and also reported higher ridership.

Ranking Summary Chart

City	Ridership Rank	Public Finance Rank	Level of Service (Revenue Hours)	Population	% University Trips Rank
Lincoln, NE	6	6	6	2	4
Springfield, MO	9	7	7	7	N/A
Tallahassee, FL	3	5	4	5	1
Lexington, KY	2	3	2	4	5
Lansing, MI	1	1	1	1	2
Little Rock, AR	5	4	5	6	8
Anchorage, AK	4	2	3	3	7
Fargo, ND	7	9	8	9	3
Waco, TX	10	10	10	10	N/A
Lafayette, LA	8	8	9	8	6

Public Finance includes Local and State revenues

The table below presents an overview of both StarTran’s and the peer group’s service characteristics. Information presented in this table is from the 2010 National Transit Database.

City	Service Area Population	Peak Vehicles	Revenue Hours	Revenue Miles	Ridership	Annual Operating Cost	Passenger Revenues
Lincoln, NE	258,004	50	128,687	1,807,501	1,812,865	\$9,550,806	\$1,215,213
Springfield, MO	157,630	20	85,342	1,215,598	1,406,547	\$7,175,005	\$898,830
Tallahassee, FL	162,310	56	221,213	2,422,661	4,828,584	\$12,856,536	\$4,207,094
Lexington, KY	210,650	50	270,676	3,523,510	6,259,830	\$19,267,564	\$2,405,566
Lansing, MI	277,316	79	417,531	5,797,545	11,346,906	\$39,057,975	\$7,653,505
Little Rock, AR	160,765	47	204,290	2,933,999	2,542,101	\$13,811,945	\$1,976,755
Anchorage, AK	218,145	45	237,039	3,058,355	4,343,325	\$27,145,852	\$5,312,755
Fargo, ND	125,000	20	76,910	980,746	1,627,905	\$5,427,071	\$934,299
Waco, TX	117,241	15	64,659	998,686	727,316	\$4,247,928	\$528,642
Lafayette, LA	142,031	17	64,831	832,048	1,449,914	\$4,764,922	\$533,091
<i>Average</i>	<i>182,909</i>	<i>40</i>	<i>177,118</i>	<i>2,357,065</i>	<i>3,634,529</i>	<i>\$14,330,560</i>	<i>\$2,566,575</i>

It should be noted that ridership for StarTran is estimated to increase by 14% with a new contract with UNL putting total estimated ridership at 2,300,000 – 2,400,000.

Peer System Background

The City: Springfield, MO

Springfield is the third largest city in the state of Missouri with a population of 159,498 according to the 2010 census data. The Springfield Metropolitan Area, population 436,712, includes the counties of Christian, Dallas, Greene, Polk and Webster. Median household income is \$33,771 and 22% are below poverty line. The largest university in the region, Missouri State University, has a student enrollment of 25,055. Other, smaller colleges include religious based, technical and nursing schools.

The Agency: Springfield Utilities Transit

Springfield Utilities Transit is one of 5 departments of City Utilities for the City and surrounding counties. Transit service is provided within the city limits of Springfield. SUT operates a total of 19 bus routes with a few routes operating till 11:30 pm, Sundays and holidays. SUT’s route network is primarily radial in nature with most routes serving the downtown transfer station. SUT provides service to Missouri State University via one route. MSU has own student shuttle service with several routes and convenient service. College students can pay \$125 for a semester bus pass.

The City: Tallahassee, FL

Tallahassee is the capital of Florida. It is the county seat and only incorporated municipality in Leon County. In 2010, the population recorded by the U.S. Census Bureau was 181,376 and the Tallahassee metropolitan area is 367,413. Median household income is \$38,972 and 29% are below the poverty line.

Tallahassee is home to several colleges and universities, notably Florida State University and Florida A&M University. FSU has a student enrollment of 41,710 and Florida A & M has a student enrollment of 13,089.

The Agency: StarMetro

StarMetro is city owned and operated and with a total of 12 weekday bus routes including Saturday and Sunday service operating in Tallahassee. Weekday routes operate with 20 – 40 minute headways all day and Saturday routes operate with 40 – 50 minute headways all day. Evening service is provided on 6 routes operating till approximately 10:30 pm. Sunday service is also provided on 6 routes. StarMetro's route network is both radial and grid like. StarMetro provides service to FSU via 9 routes and service to Florida A & M with 2 bus routes. Service is also provided to Tallahassee Community College (student enrollment: 17,669). Students of FSU, Florida A & M and TCC ride for free on all StarMetro bus routes. Approximately 60% of StarMetro ridership is university ridership, which includes FSU, Florida A & M and TCC. StarMetro has contracts with all three of these schools that vary in their terms.

The City: Lexington, KY

Lexington (officially Lexington-Fayette Urban County) is the second-largest city in Kentucky and the city's population is 295,803, anchoring a metropolitan area of 472,099 people according to the 2010 Census. The median income for a household in the city was \$48,306 and 17.9% are below poverty line. The largest university in Lexington is University of Kentucky with a student enrollment of 28,000. UK also employs approximately 12,000 staff. Other smaller universities and technical schools are also found in Lexington.

The Agency: LEXTRAN

Lextran is the transit Authority of the Lexington-Fayette Urban County Government operating a total of 25 bus routes. Most routes operate 7 days a week on with some evening service. Headways range from 15 – 30 min peak/hour non-peak on weekdays and weekends is hour headways. In addition to regular route service, LexTran contracts with the University of Kentucky and operates four routes around the campus. These four routes have about 15 – 20 minute headway service. UK students can ride for free on two of the four routes. Approximately 12% of Lextran ridership is university trips. UK Parking system provides their own bus shuttles on campus. Lextran also runs two routes to the Bluegrass Community and Technical College campuses. Semester and annual passes are available for students for \$50 and \$75.

Lextran's route network consists of almost all bus routes operating in a radial pattern with a main downtown transfer center.

The City: Lansing, MI

Lansing is the capital of Michigan with a population of 114,297, according to the 2010 Census. The population of its Metropolitan Statistical Area was 464,036. The largest university in the Lansing area (East Lansing) is Michigan State University with a student enrollment of 47,800. Michigan state campus is the largest of the peer cities with a total of 5,200 acres; almost twice the size of UNL's two campuses at 2,800 acres. MSU parking is restricted for 1st year students and parking overall is limited. Other schools in Lansing include Lansing Community College with a student enrollment of 18,000. The median income for a household in the city was \$37,528 and 25.2% are below poverty line.

The Agency: Capital Area Transportation Authority

CATA provides public transit bus service to the Lansing-East Lansing Metropolitan area including seven towns in the area on 33 routes. Most routes operate 7 days a week with some evening service. CATA has two transportation hubs, one in downtown Lansing and one on the MSU campus with a radial network design. CATA has a connector service between two towns for a higher fare and a separate zone fare for western Lansing area. Service is provided to MSU campus via seven routes. MSU students ride for a reduced rate. Approximately 60% of CATA ridership is from student ridership, secondary and post-secondary students. The majority of trips are MSU students. Evening service is provided by an Entertainment Express (trolley) service that operates 7:30 pm – 2:30 am that serves downtown Lansing, East Lansing and MSU campus.

The City: Little Rock, AR

Little Rock is the capital and the largest city of the state of Arkansas. The Metropolitan Area had a population of 709,901 people in the 2010 census. The median income for a household in the city was \$44,392 and 17.8% of the population is below the poverty line. The largest university in Little Rock is the University of Arkansas at Little Rock with a student enrollment of 13,167.

The Agency: Central Arkansas Transit Authority

CATA provides services to the city of Little Rock and North Little Rock. Route service includes 21 routes and 4 express routes. Bus service operates Monday through Saturday with limited Sunday service. A few Monday – Friday routes operate till 8:00 pm. CATA also operates an electric trolley service called River Rail covering 3.5 miles with service connecting Little Rock and North Little Rock. Bus service operates a radial network design with all routes serving a downtown transfer center. The 4 express routes provide service to outlying towns. Three CATA routes serve the University of Arkansas at Little Rock campus and the university operates its own free intercampus shuttle to students. Discounted bus passes are

available to University of Arkansas students and students in general. Approximately 6% of CATA ridership is university ridership.

The City: Anchorage, Alaska

The municipality of Anchorage has a population of 291,826 per 2010 Census. The median income for a household in the municipality was \$75,485 and 7.8% of the population were below the poverty line. The University of Anchorage has a student population of 16,500.

The Agency: People Mover

People Mover is operated by the Municipality of Anchorage and provides service to the city of Anchorage including two suburbs. Route service includes 14 routes that operate seven days a week. Evening service is provided on weekdays and limited service on Saturdays and Sundays. Most routes serve the downtown transit center and others serve two satellite hubs. Four People Mover routes serve the University of Alaska campus and students ride free on all routes. Approximately 8% of transit ridership is from a U-Pass program which consists of 3 local colleges. Service improvements such as providing better headways on two key routes, creating transit hubs, and schedule adjustments that are easier to understand have helped increase or maintain ridership, according to People Mover staff.

The City: Fargo, ND

Fargo is the largest city in North Dakota with a population of 105,549. Fargo, along with its twin city of Moorhead, Minnesota form the Fargo-Moorhead Metropolitan area with a population of 208,777. The median income for a household is \$42,710 and 16.1 % of the population were below the poverty line. North Dakota State University is the largest college in Fargo with a student population of 14,000.

The Agency: Metro Area Transit

MAT provides service to the communities of Fargo & West Fargo, North Dakota, and Moorhead & Dilworth, Minnesota. Bus service operates Monday through Saturday and includes 21 routes. Two routes provide evening service with one of these evening routes serving the NDSU campus. A total of three routes serve NDSU and all students ride for free. MAT buses also serve University of Minnesota-Moorehead (7,500 students) campus and Concordia college (2,800 students) with all students riding free. MAT has agreements with all three of these colleges of which 53% of ridership consists of college trips. MAT's route network is a radial pattern with a downtown transfer center serving all routes.

The City: Waco, TX

According to 2010 census Waco had a population of 124,805. The median income for a household in the city is \$31,971 and 30.1% of the population were below the poverty line. The largest university in Waco is Baylor University with a student population of 15,195.

The Agency: Waco Transit System

Waco Transit is a city operated transit system serving the city of Waco and surrounding communities. A total of 10 bus routes serve the area and operates Monday – Saturday with no Sunday or evening service. The Baylor University Shuttle (B.U.S.) is a fixed route transportation system operated by Waco Transit in cooperation with the Baylor University Division of Operations and Facilities. Three routes with convenient service provide service to the Baylor campus. The B.U.S. is free for all riders. Waco Transit’s route network is a radial pattern with a downtown transfer center serving all routes. The DASH (Downtown Area Shuttle) is a service paid for by downtown business owners, investors and Baylor University. The DASH service runs every 15 minutes when Baylor is in session.

The City: Lafayette, LA

The population of Lafayette is 120,623 according to the 2010 census. The median income for a household in the city was \$44,688 and 18.7% of the population were below the poverty line. The University of Louisiana at Lafayette is the largest university in Lafayette, with an enrollment of approximately 16,000.

The Agency: Lafayette Transit System

Lafayette Transit System is operated by the Parish of Lafayette and public transportation is provided only within the city limits. Twelve routes run Monday-Saturday, generally functioning at half hour or hour intervals. LTS route network is a radial pattern with a downtown transfer center serving all routes. Night service is provided on 4 routes that run 6:30pm – 11:30 pm Monday – Saturday. Three routes serve the University of Lafayette. There is not a discounted or free fare for students. Staff estimate that approximately 9% of total ridership is from University students. Lafayette Transit has seen positive ridership gains by implementing a circulator route that connects many businesses, including all hospitals.

The City: Lincoln, NE

The population of Lincoln is 258,379. The median income for a household in the city was \$49,114 and 15.5% of the population were below the poverty line.

Transit System Fares

City	Adult Fare	Seniors/ Disabled	Children	Other	Monthly Pass
Lincoln, NE	\$1.75	\$.85	4 & Under Free	UNL Students & Faculty ride free Low Income Program	\$17.00 * \$8.00 Low Income
Springfield, MO	\$1.25	\$.60	5 & Under Free	Semester Pass: \$125	\$45.00
Tallahassee, FL	\$1.25	\$.60	Infant in Arms Free 17 & Under: \$.60	Florida State, Florida A & M, Tech College students ride free	\$38.00
Lexington, KY	\$1.00	\$.50	6 & Under Free Ages 7 – 18: \$.80	Semester Pass: \$50 Full Year Semester Pass: \$75	\$30.00
Lansing, MI	\$1.25 fixed route & trolley; Zone fares	\$.60	Under 42": free	students pay reduced rate Semester pass: \$50	\$35.00
Little Rock, AR	\$1.35 River Rail: \$1.00	\$.60	4 & Under Free	Monthly student pass: \$19.50	\$36.00
Anchorage, AK	\$1.75	\$.50	Ages 5-18: \$1.00	U of Anchorage students ride free	\$55.00
Fargo, ND	\$1.50	\$.75	K-12: \$.75	NDSU and other local college students ride free	\$40
Waco, TX	\$1.50	\$.50	5 & Under Free	Baylor B.U.S routes: no fare	\$40
Lafayette, LA	\$1.00	\$.50	Ages 5-18: \$.90		\$38.00
<i>Average</i>	<i>\$1.32</i>	<i>\$.60</i>			<i>\$34.7</i>

It should be noted that under the “Other” column the agreements that these transit agencies have with local colleges whereby students ride “free” is at the point of sale. The user (student) does not pay a fare to board but there is a fee that is included in a student’s tuition.

* StarTran’s monthly pass cost was \$45.00. In October 2012 the price was reduced to \$17.00.

Funding Sources

City	Passenger Fares	Farebox Recovery	Local	State	Federal	Other
Lincoln, NE	\$1,215,213	12.7%	\$5,035,780	\$376,756	\$2,635,499	\$287,558
Springfield, MO	\$898,830	12.5%	\$3,546,558	\$226,779	\$2,419,989	\$85,429
Tallahassee, FL	\$4,207,094	32.7%	\$7,616,061	\$959,643	\$6,049,688	\$73,738
Lexington, KY	\$2,405,566	12.5%	\$13,919,559	\$200,494	\$2,496,856	\$299,207
Lansing, MI	\$7,653,505	19.6%	\$17,195,413	\$11,296,143	\$2,526,971	\$552,468
Little Rock, AR	\$1,976,755	14.3%	\$9,334,551	\$464,307	\$1,887,629	\$156,723
Anchorage, AK	\$5,312,755	19.6%	\$15,547,410	\$1,492,599	\$4,276,105	\$828,008
Fargo, ND	\$934,299	17.2%	\$1,318,004	\$316,200	\$1,957,456	\$901,112
Waco, TX	\$528,642	12.4%	\$45,210	\$671,780	\$2,381,506	\$666,000
Lafayette, LA	\$533,091	11.2%	\$1,751,986	\$263,611	\$2,205,496	\$10,738
<i>Average</i>	<i>\$2,566,575</i>	<i>17.9%</i>	<i>\$7,531,053</i>	<i>\$1,626,831</i>	<i>\$2,883,720</i>	<i>\$386,098</i>

From 2010 NTD

Farebox Recovery includes: user fees and university revenues

Level of Service Comparisons

City	Revenue Hours	Frequency (weekday)	Sunday Service?	Night Service?
Lincoln, NE	128,687	30 min peak 60 min midday	No	No
Springfield, MO	85,342	30 min peak all day & 60 min routes	Yes	Yes, a few routes
Tallahassee, FL	221,213	20-40 min all day	Yes	Yes, 6 routes till 10:30
Lexington, KY	270,676	15-30 min peak 60 min midday	Yes	Yes, 2 routes till 1am – CBD & university only
Lansing, MI	417,531	20-30 min peak 30-60 min midday	Yes	Yes, a few routes
Little Rock, AR	204,290	30-45 min peak & midday	Yes	Yes, a few routes till 8:00 pm
Anchorage, AK	237,039	30-60 min peak & midday	Yes	Yes, a few routes till 10:00 pm
Fargo, ND	76,910	30-60 min all day	No	Yes, 2 routes
Waco, TX	64,659	60 min all day B.U.S – 10 min all day DASH – 15 min	No	No
Lafayette, LA	64,831	30-60 min	No	Yes, 4 routes
<i>Average</i>	<i>177,118</i>			

University Comparisons

The column “University Pop to Service Area Pop” is the percent of the university population relative to the service area population.

The last column, “% Univ Trips” is the percent of university trips relative to the systems total ridership

City	University	Service Area Population	Service Area Square Miles	Population Density	University Population	University Pop to Service Area Pop	% Univ Trips
Lincoln, NE	University of Nebraska	258,004	91	2,835	21,059	8.2%	25.7%
Springfield, MO	Missouri State University	157,630	82	1,922	25,055	15.8%	N/A
Tallahassee, FL	Florida State University	162,310	102	1,591	41,710	25.6%	60%
Lexington, KY	University of Kentucky	210,650	67	3,144	28,094	13.3%	12%
Lansing, MI	Michigan State University	277,316	136	2,039	47,800	17.2%	60%*
Little Rock, AR	University of Arkansas	160,765	94	1,710	24,595	15.2%	6%
Anchorage, AK	University of Alaska	218,145	77	2,833	16,500	7.5%	8%
Fargo, ND	North Dakota State University	125,000	45	2,777	14,399	11.5%	53%
Waco, TX	Baylor University	117,241	58	2,021	15,195	12.9%	N/A
Lafayette, LA	University of Louisiana Lafayette	142,031	50	2,840	16,885	11.8%	9%
<i>Average</i>		<i>182,909</i>	<i>80.2</i>	<i>2,371</i>	<i>25,129</i>	<i>13.9%</i>	

Notes:

Tallahassee’s other colleges include Florida A & M and Tallahassee Community College that combined have a student population of 30,758. Including these colleges and FSU the University Population (72,468 total students) to Service Area population is actually 44.6%.

Including Fargo’s two other colleges that MAT has contracted relationships with puts the university population to service area population at 19.7%.

*represents secondary and post-secondary trips. The majority of these trips are MSU trips.

Other Factors

City	Household Income	Unemployment Rate	Poverty Level	Automobile Ownership*	Mean Travel Time to Work (minutes)*
Lincoln, NE	\$49,114	4.2%	15.5%	94%	17.4
Springfield, MO	\$33,771	8.5%	22%	91%	17.3
Tallahassee, FL	\$38,972	8.3%	29%	92%	17.7
Lexington, KY	\$48,306	8.4%	17.9%	92%	19.7
Lansing, MI	\$37,528	10%	25.2%	89%	19.7
Little Rock, AR	\$44,392	6.5%	17.8%	92%	17.8
Anchorage, AK	\$75,485	7.3%	7.8%	94%	18.6
Fargo, ND	\$42,710	4.1%	16.1%	91%	14.9
Waco, TX	\$31,971	7.2%	30.1%	90%	16.5
Lafayette, LA	\$44,688	6.1%	18.7%	91%	20.3
<i>Average</i>	<i>\$44,694</i>	<i>7.06%</i>	<i>20.01%</i>	<i>92%</i>	<i>17.99</i>

* Automobile Ownership:

Household size by Vehicles Available (2009-11 American Community Survey of U.S. Census)

*Mean Travel Time to Work: U.S. Census

Poverty level is persons below poverty line, 2010 Census

Unemployment Rate is from Bureau of Labor Statistics, 2010 data

MEMO

Date: January 18, 2013

To: StarTran Advisory Board

From: Brian Praeuner

Re: Request for information on Grid Network bus systems

Per the Advisory Board's request for information and costs of a grid bus network provided is background information on bus route networks and further information on grid type bus networks.

Background Information: Types of Bus Networks

Radial/Hub-and-Spoke System:

Routes radiate in and out of a single, centrally located transit center. When more than one transit center is provided, the system can be referred to as a hub-and-spoke system. This is the most popular service type in low to moderate density areas as a greater amount of regional coverage can be provided with one transfer at a central location.

Trunk Route System:

System with routes located along major road corridors/arterials and link major generators. Connecting routes are a mixture of limited and high density stops.

Circulator Service System:

Provides transportation service within a limited area such as a downtown, a suburban community, etc. Generally, all service is higher density stops (very little/if any limited stop service).

Grid System:

Made up of a series of networks of mostly parallel routes laid perpendicular to each other to form a grid based on the street network. Included in the types of service integrated into the grid are limited stop/express service and circulator service. Mostly used in communities with multiple activity centers of a similar intensity. Assumes no one area gets preferential service treatment over another. The only two cities found with grid "like" systems are Chicago and Los Angeles. Both these cities have several grid type routes and routes that serve the downtown areas.

Crosstown System:

Service set up to connect two areas without going through the CBD (the typical hub location). The connecting service may be limited stop if the two connected areas are complementary in uses (i.e. one being residential and the other employment).

Grid Bus Network: Advantages and Disadvantages

Advantages:

- The relative simplicity of the system. Such a system is easy for public to understand and navigate

Disadvantages:

- Nearly all patrons would have to transfer at least once, and many times twice, before reaching destination
- Not afforded direct service to downtown, which continues to be largest concentration of employment and student trip purposes

Costs:

For a grid system to work well, frequent service should be furnished on every route: headways should be every 15 or 20 minutes or less. A grid system will not work well with half-hour headways because it is mathematically impossible to schedule more than a few key locations for convenient transfer connections. The remaining locations will involve long waits for transfers. A successful grid system depends on random connections and frequent headways. If population density or ridership is low and will not support frequent headways, it is doubtful that a grid system will be very successful.

At a minimum to obtain 15 minute peak and 30 minute non-peak service need to double our current operating costs and increase fleet size:

- Operating – An additional \$6,000,000/year
- Increase fleet size – estimate need an additional 33 buses at \$400,000 each = \$13,200,000

This assumes the same number of routes just reconfiguring the route network and increasing the hours of service and vehicles. These costs do not include additional vehicle storage facility.

If the preferred network was the grid and the goal was to keep costs at current levels a grid system may be feasible if the grid network covered only part of the city today. That is, providing 15 minute headways could be attainable if many activity centers near the fringe were eliminated such as SECC, SouthPointe, LPS schools, Arnold Heights, etc.