

# A Vision of Mobility:

## Practical Public Transit for the Matanuska Valley

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## **Executive Summary:**

Often, people believe that owning a car is a necessity of life to be able to work, make money, socialize, and shop. However, private automobiles create numerous problems of their own. Automobile, fuel, insurance, and maintenance costs can cost families thousands of dollars, mostly spent out of state. Car crashes cost millions of dollars in hidden expenses to the economy. People unable to use cars put a heavy burden on the social welfare systems. The solution is a centrally planned and administered effective public transit system designed to be completely viable as a replacement for private automobiles.

### ***Not investing in transit is expensive***

Many drivers on Borough roads are dangerous, and would not drive if another option was available to them. Some have revoked licenses; others have medical conditions which impair their driving skills. Presently these people either drive regardless of the risk, or collect public assistance money because of their inability to transport themselves safely to gainful activities.

The American Automobile Association (AAA) estimated the average cost of car ownership at \$8,121 each year – assuming gasoline costs \$2.941 per gallon. Global oil supply is decreasing even as global oil demand is rapidly increasing, which may create profound price instability and price increases in the future.

An AAA study on the economic cost of car crashes on the US economy showed that it represented a massive hidden subsidy; in Anchorage, which was used as a data gathering point, this subsidy came to approximately \$415 million dollars in the year 2005, or \$0.44 per vehicle mile traveled. Data was not available for the Borough, but available numbers indicated that the Borough's costs were significantly higher per capita; 2007 was an unusually safe year for

cars, with only 10 fatal collisions and 12 fatalities recorded by the Troopers in the Mat Su Borough area plus Glenallen; FHWA numbers place that years fatalities alone at almost \$47 million in hidden subsidies. Nationwide, cars kill 43,000 people every year, which is similar to two jumbo jets crashing every week. Drivers generally ignore the danger, as everyone believes themselves to be an above-average driver who will not crash.

Tourists visiting the Valley often do not have or cannot legally use automobiles, and the absence of transit prevents them from visiting.

Traffic on many roads is increasing, and many road projects are being put forward to deal with the problem. Individual cars often only carry a single person, but take up large amounts of space, and thus a road which appears congested is actually not serving very many people at a given moment. Expanding existing roads in order to increase their capacity to carry high volumes of people can be very expensive and politically challenging due to right of way acquisition issues, and draws funding away from projects to develop needed road coverage in the valley to provide for needed connectivity.

Many people cannot drive; the elderly population of the Valley is growing as baby boomers age, and many of the elderly gain aging-related disabilities which impair their driving skills. Some are forced to get assistance from relatives or caregivers who take time to transport them, some are forced to stay home and are unable to meet basic needs, and some chose to illegally drive in spite of dangerous handicaps. Parents in the 21<sup>st</sup> century spend an inordinate amount of time ferrying children too young to drive to various destinations; lest the children miss out on opportunities for healthy or scholastically productive activities.

People who lose their license due to DUI often find themselves needing to drive illegally to reach their court-required appointments, or have their charges increased to a felony.

Many people can drive in theory, but would be better off if they were able to spend the valuable resources elsewhere. These can include new families, recent graduates entering the workplace, households experiencing temporary financial hardships, and more.

For these reasons, public transit is a necessary public service which must be provided by and for the community.

### ***Transit should serve everyone***

Transit systems should compete fully with cars, and aspire to serve all transport needs of the community. They should be marketed to people who can afford to use a car if they want to. This will increase the livability and reputation of the region, create jobs, reduce unemployment, and increase the amount of money spent within the community.

The service should allow people to go from “anywhere to anywhere” without extensive route planning, in as short a time as possible. This goal can be achieved with a well designed network. A bus isn't an analogue of a car, instead, a bus line is an analogue of a road; nobody expects that a road will have every destination they want on it without turning onto other streets. Connections between buses are the “intersections” of the roads, and they should be free and easy to encourage proper use of the network.

### ***An efficient network can serve the Valley effectively***

Best practice for a rural area such as the Valley is to use a “Pulse Timetable”, as developed in rural Switzerland. In a pulse timetable, all buses meet at memorable times – hours or fractions of an hour – at central transfer points to facilitate easy transfers between routes. Based on time information gathered by MASCOT, a frequency of one pulse per hour is suggested as a starting point. This model is similar to the “Hub and Spoke” system that airlines use to economically

provide frequent service to a very large network of cities. It eliminates service duplication and allows individual routes to be very efficient.

In the Valley, the two centers which should be used as transfer centers are in the historical downtown areas, near City Hall, the Train Depot, the Library, and other similar services. In Wasilla, this is in the vicinity of Swanson Street and Main to Yenlo, and in Palmer this is near the Depot – either the Mat Maid property or Alaska Street between Dogwood and Evergreen would be ideal.

As an example of a trip someone might take on a system of this type, one might leave from the Butte at 7:10 AM, transfer in the center of Palmer to an express bus at 7:30, arrive in Wasilla to transfer onto a Big Lake bus which leaves at 8:30, and be in Big Lake before 9:30, while having time to work or rest on the way. To travel from Wasilla to Port Mackenzie, one would take a collector to the transit center, which would take less than half an hour, transfer at the half hour to the Knik-Goose Bay bus, drive one hour to Knik Lake, then another twenty to twenty five minutes to the new prison or the ferry terminal. Ferry services would be coordinated with bus timetables, in order that the transfer to the ferry to Anchorage would be as easy and painless as the transfer at Wasilla Central.

### ***Bus lines are like roads***

Many people feel that transit systems should pay for themselves with full buses, but they fail to apply this logic to our heavily subsidized road network of often empty roadways.

Many buses in the system may appear to be relatively empty. These buses are collecting passengers and bringing them to the central connection points and lines; they are important in the same way that roads like Scott Road, Farm Loop Road, Hyer Road, et al are important in spite of not having very much traffic. Nobody suggests abandoning Scott Road because “not very many people use it”, because many people often use roads

similar to Scott Road, and they often use such roads at off-peak times.

Alternately, arterial lines are often full, and must have competition restricted in order to preserve the revenue generating portions of the system.

### ***Buses should be upscale***

Service quality is very important. Because transit should compete with the private auto, and because negative experiences with unclean buses or frightening people can drive away choice riders, and because choice riders' support is important to transit in the community, buses should uphold standards of behavior and cleanliness in a manner similar to restaurants and other such businesses.

### ***Transit should be obvious***

Recognizable color and logo schemes makes buses immediately recognizable and stand out, and advertise the service. In cities which do not uphold bus branding and have competing carriers, public awareness of transit is lowered.

Thus, transit vehicles in the region should all share recognizable branding and standards, creating a unified quality "brand" of transit in the region. Schedules, procedures, fares, and decoration should all have a unified face to the service customers.

Fare box policy can and should be adjusted as a tool to encourage longer term stability and support of the transit system, rather than as a pure month to month economic requirement. This can include measures such as discounted long term passes, employee passes as a benefit, student passes, or even fare removal if appropriate to the situation. This requires financial security and vision.

### ***The role of central control***

In order to address these concerns successfully, a central body to regulate and control the transit system is needed

Currently, political leadership in the area is

focused on developing a public authority for this purpose. This authority should be empowered with abilities such as the power to create bonds, enforce laws for ticketing, acquire land for infrastructure as needed, and pass standards. An authority would have much greater financial stability than MASCO's present non-profit status allows for.

Land use planners and transit authority planners might work together to develop long term transit plans; this would reduce market instability and allow planners to focus development in constructive ways without resorting to restrictive zoning.

As changes in services based on possibly transitory concerns can erode user confidence, the transit authority's avenues for public involvement should take the form of transparency, accountability, and discussion, not direct control. Authority planners will need to occasionally make politically unpopular decisions, and should not fear for job security due to these decisions.

There are some things to watch for: First, the transit authority should be able to have regulatory control over public transit in the region. Competing providers can erode the viability of the transit authority's funding base by cherry-picking routes which are profitable because of transit's service to collectors, and therefore absorbing the revenue generation stream needed by the transit system. Second, transit planners should have dialog with those who are planning roads and land use, in order to avoid conflicting development plans from both being attempted at significant cost.

### ***Timeline***

There are indications that formation of a transit authority will take one to two years, and occur at a time close to that of the re-authorization of SAFETEA-LU, the Federal transportation bill. Furthermore, sometime between 2010 and 2012 the Borough is likely to achieve a population which triggers a shift to a Metropolitan Planning Organization (MPO) structure, resulting in shifts in funding

structures. Until these happen, the Borough and cities should work closely with and increase funding to MASCOT to ensure that the groundwork is placed for a good transit system in preparation for the upcoming changes.

While an exact timeframe for how to plan these steps would be desired, fuel crises and unpredictable global events are likely to create substantial opportunities. Exceptionally bold plans should always be kept in reserve specifically to capitalize on public outcry created by probable future fuel crises.

### ***What is needed***

A system of this design would be efficient and very affordable, with an annual cost of a tiny fraction of that spent on road work in the Valley in any given year. The Operations Manager of MASCOT gave a rough estimate of approximately \$8 million annually from combined sources, compared to a present combined budget of \$1.7 million. This would improve service much more than a simple linear increase, providing fixed and deviated service to the entire Valley, including Fishhook, Sutton, Hatcher Pass, the Butte, Houston, Big Lake, Anchorage, Palmer, and

Wasilla on almost all major arterials.

Action is needed on the part of the Borough to add street stops to the area, in the form of sign standards and signs, as well as investigation of pullouts and the like. MASCOT planners report that by merely allowing them to stop on the street at designated stops, services in some areas could be increased as much as 600% - overall speed would roughly double, while simultaneously serving three times as many destinations.

### ***Conclusion***

In speaking with residents of the Valley, I have noted a substantial demand for public transit service. A good transit system would far more than pay for itself. While some believe that people in the Valley have a “love affair with cars”, the statement discussions with the majority residents reveal is actually “*Other* people must love their cars – but I hate driving.” Creating a world-class public transit network in the Valley is viable, affordable, and proven to work; it will have great benefits to the area, and can be done affordably. It is time to act to make it a reality.

## **Public Transit - A Public Service Too Long Neglected**

It is a commonly held view that owning a car is a necessity of life. The ability to get from place to place reliably is a necessity for almost everyone in order for them to earn a living, keep in touch with friends and family, and visit the many businesses and places which make the Borough an attractive place to live and work in. In today's society, that more often than not means owning and operating a private automobile.

Private automobiles, however, can be more of a problem than a solution. Automobiles expose people to serious, life-threatening dangers – many of which would go away were alternative methods to get around available. Fuel, insurance, and maintenance costs drain large amounts of money away from families who may be ill equipped to pay the bills, reducing their ability to spend money at local businesses or even to maintain their health. Auto accidents create further serious drains on the economy of the region, causing lost productivity, medical expenses, and other assorted costs. Furthermore, many people simply have no ability to use an automobile and are effectively stranded, creating serious demands on the public welfare network.

The solution is an effective and efficient public transportation system, one which is centrally planned and administered to work as a coherent system, built to effectively compete head to head with private automobiles. This report is intended to explain how such a system can be created, and why.



## **Poor transit service is no bargain**

Relying solely on private automobiles to transport us means that people must own and operate a car, even if they are not at that time easily or safely able to do so. For many people, this is dangerous, unhealthy, or simply impossible; even those who can afford to own a car might be better served by the ability to choose otherwise. Our lack of alternatives for transportation harms the borough in several ways.

### ***Public safety***

One woman I spoke with wishes better public transit options were available in her home area of Sutton. While she is hoping to get a car to be able to commute to work, she worries that the costs of owning the car will wipe out much of her income. Instead, she gets rides from her family and friends when available. "A lot of the time, I ride in with my dad," she says, "but he doesn't like driving because he's a heart patient. He blacks out sometimes, so we drive at 35 MPH or less, so that when he passes out, I can grab the wheel; "Scary." She also noted that others she knows are in similar predicaments. "My neighbor lost his license, so he has to get rides from everyone," she noted. "He can't really have a job because he never knows if he can get there on time." As a result, he relies heavily on public assistance. Many people in similar situations may choose to drive with suspended licenses, endangering the public and creating strain on the legal system. The Troopers report that when they pull people over with suspended and revoked licenses, they invariably complain that there is no other alternative to get to their destination.

### ***Economic costs***

"If you are thinking about buying a car," an economist once told me, "For the next few months, once a week, take a \$100 bill out of your pocket and flush it down the toilet. If you can get used to doing that, you are ready

to own a car." The suggestion seemed absurd and painful. Yet the evidence indicates that this suggestion was optimistic; the AAA concluded that the average cost to own a car in the US in the year 2008 was \$8,121. Of this amount, \$5,576 per year, or \$15.28 each day, is a fixed cost which applies even if the car in question does not move an inch for the entire year.<sup>1</sup>

This estimate is based on a number of assumptions of costs, including a fuel price of \$2.941 per gallon, derived from 2007 data. As of Friday, September 12, 2008, Palmer Chevron was selling regular unleaded at \$4.199 per gallon; there is no indication that fuel prices will fall to levels remotely resembling the prices of previous years anytime soon, or even slow their increase. In fact, projections indicate that at some point in the next four to eight years, global demand for fuel will exceed global production and supply, which may cause severe price shocks or rationing.<sup>2</sup>

Money spent on the automobile results in a reduced buying power for local goods, weakening the local economy. This can create stress on social services when public assistance is, in essence, asked to pick up the slack when families chose to feed their automobile rather than their children. The use of such a large segment of peoples' earning power weakens local businesses by denying their customers the money they would otherwise spend there, instead being spent to enrich automobile manufacturers and foreign oil producing nations.

### ***Health costs***

The AAA recently did a study of the economic costs of car crashes on the U.S. economy. Their conclusion was that these

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- 1 "Your Driving Costs 2008" AAA, retrieved from <http://www.aaapublicaffairs.com/Assets/Files/20084492120.YourDrivingCosts2008.pdf>; composite average, assuming 15,000 miles per year.
  - 2 "Oil Officials See Limit Looming On Production". Wall Street Journal, November 19, 2007

costs were approximately two and a half times greater than the often-stated costs of traffic congestion. Among other data, the city of Anchorage was used as an example as one of the cities studied. The report estimates the economic drain of car wrecks in the city of Anchorage in the year 2005 at approximately \$415,000,000.00, which comes to \$0.44 per vehicle mile traveled citywide, or \$1,181 per person.<sup>3</sup>

The numbers add up: Worldwide, automobiles are among the worst causes of death, and are the number one cause of death between ages 10-25. 1.2 million people are killed by automobiles annually.<sup>4</sup> In the US, automobiles directly cause over 40,000 deaths a year.<sup>5</sup> These deaths can create significant financial and emotional hardship for families, and contribute to the need for social services. Car crashes have been estimated at costing the U.S. economy two and a half times the cost incurred by congestion; this figure, however, is an average containing large cities such as Los Angeles, in which congestion is comparatively a much larger issue and accidents much less. In the "small" metropolitan area of Anchorage, Alaska, the cost of car crashes was calculated to be 1536% that of congestion as a total, or 1225% per person.<sup>6</sup>

In the Mat-Su Borough, with the inclusion of Glenallen, the Alaska State Troopers report that 12 people were killed in 10 fatal collisions in 2007. A 'fatal collision' in this case is defined loosely as any incident where a car hit anything (a tree, a ditch, another car, a pedestrian, etc) and someone was pronounced dead. The troopers were greatly pleased by this number; 2007 was reportedly an exceptionally safe year in this regard, with

13 collisions in 2006, 17 in 2005, and even more in previous years. These 12 fatalities, according to FHWA figures, cost a total of \$46,974,307.76 in 2007 dollars.<sup>7</sup> The target number to which we should aspire to is, of course, zero; this number is difficult if not impossible when there are large numbers of people on the road without valid licenses, impaired drivers, and the like.

*"Nearly 43,000 people die on the nation's roadways each year. Yet, the annual tally of motor vehicle-related fatalities barely registers as a blip in most people's minds. It's time for motor vehicle crashes to be viewed as the public health threat they are. If there were two jumbo jets crashing every week, the government would ground all planes until we fixed the problem. Yet, we've come to accept this sort of death toll with car crashes." - Robert L. Darbelnet, CEO, American Automobile Association<sup>8</sup>*

These safety costs are rarely remarked upon because of optimism bias; virtually all drivers on the road believe that they are 'above average' drivers, and expect that they will not experience a car crash as a result.

## **The Transit-using tourist and the Valley**

During summer months, people come from worldwide to enjoy the many opportunities the Borough has to offer. Tourism is a significant driver in the economy, and people come from all parts of the world. In many of these other part of the world, efficient public

3 March 5, 2008. Meyer, Michael. "Crashes vs. Congestion: What's the cost to society?" pp A-7

4 August 14, 2007. United Nations. "Improving Global Road Safety" pp 3

5 <http://www.fars.nhtsa.dot.gov/Main/index.aspx>

6 March 5, 2008. Meyer, Michael. "Crashes vs. Congestion: What's the cost to society?" Cambridge Systematics, Inc for American Automobile Association. Last retrieved from: [http://www.trb.org/news/blurb\\_detail.asp?id=8812](http://www.trb.org/news/blurb_detail.asp?id=8812) pp 4-5, A-15

7 March 5, 2008. Meyer, Michael. "Crashes vs. Congestion: What's the cost to society?" pp 3-3, simple multiplication, modified by the Consumer Price Index for "all items" acquired from [http://www.bls.gov/news\\_release/cpi.nr0.htm](http://www.bls.gov/news_release/cpi.nr0.htm) on Fri, Apr 25

8 Quoted from AAA Newsroom, <http://www.aaanewsroom.net/main/Default.asp?CategoryID=7&ArticleID=596> last retrieved 14 April 2008

transit is taken for granted; buses and trains are readily available. These visitors may not want to acquire an automobile for their visit, and may not have a driver's license at all, and therefore, will be at least partly reliant on an effective public transportation system. By ignoring public transit in the Borough, the Borough turns away these valued visitors, and denies itself the money they would bring to the economy.

### ***Increased traffic congestion***

Traffic on our roads is heavy, and the Borough has needed to expand road service many times, at great financial cost. The vast majority of automobiles on the road carry only a single occupant, taking up vast amounts of surface area and generating the congestion which makes these expensive road projects necessary. A line of traffic backed up from the intersection of Evergreen and the Glenn to completely block off access to Palmer City Hall would comfortably fit in a single bus. A crowded roadway which appears overwhelmingly full is, in most likelihood, actually only carrying a small handful of people, and little if any cargo, at any given moment in time. By dismissing public transportation options, the Borough chooses to instead pay for the costly highway infrastructure to carry these people in surface area intensive vehicles with major infrastructure demands. In addition to the cost of the roadway itself, the cost and difficulties involved in right of way acquisition can be challenging for government agencies to tackle.

### ***Aging Population***

A significant proportion of the population of the Borough is aging and elderly; with age comes a variety of physical and mental impairments which can negatively affect one's ability to drive safely. One elderly woman living several miles outside of Palmer with whom I spoke is an example of this. She lives in the only home she has known for many years; this location is somewhat remote. She relies upon family for many of her needs, and

experiences quite a bit of stress at the loss of independence she perceives from this.

In December of 2007, given a lack of family members available at that time, she decided to drive into town to do some errands, as she has no other alternative for transportation available to her. She had a valid driver's license, and was legally able to drive, despite failing reflexes and eyesight; nonetheless, her erratic and impaired driving skills convinced local police that she was a danger to others. They pulled her over and detained her for reckless driving until a family member could be found to transport her home.

Today, a large, organized team of family members are forced to devote significant investments of their time, often needing to take time away from work, in order to drive her to simple, everyday destinations such as the grocery store or the doctors' office. Her home is located on a major transportation corridor, and adjacent to a local workplace; were a bus route to extend to other towns in the area, they would stop where she lives, and she would be able to use public transit for any such travel needs.

### ***Not everyone can drive***

Large portions of the population are simply unable to use an automobile at all for a variety of reasons. Youth who are too young to drive can often become a burden on their families, with "Mom's Taxi Service" having to pick up the slack. If a child has an extra-curricular activity after school, such as sports, which requires a parent to pick them up from school, then the schedule of the parent is complicated by the need to reserve the time for the trip. For that journey, because a person whose sole reason for being in the vehicle is to make the vehicle go is not counted as a passenger, the vehicle is considered to be empty for half of the trip. This is an inefficient use of a vehicle, and a significant inconvenience to parents or guardians.

Furthermore, the safety of the children near the school is adversely affected; one of the greatest dangers faced by children near a

school is that of being hit by a car driven by a parent driving their child to or from school.

Some children are forced to curtail promising and productive activities because of transportation issues; one person to whom I spoke was forced to abandon their high school wrestling program, which at the time was likely to provide a college scholarship, because they were unable to find transportation home after practice.

Some people are unable to drive because of legal issues. It has been noted that an issue common to those in outlying areas who may be arrested for a DUI is that their license is taken away, and then they are asked to make appearances many miles away. Many of these are unable to legally solve their transportation issues, and either chose to drive without a license, or fail to meet the terms of their arrest and sentence and receive felony charges which hamper their ability to continue to contribute to productive society.

### ***Not everyone can easily afford to drive***

Quite a few people may be interested in an affordable alternative to car ownership for financial reasons. A new family, a recent graduate just entering the work force, or a household experiencing some loss or personal disaster may have very little money left over after paying the bills, and the ability to save money by not needing to maintain and fuel a car is likely to be a welcome relief. A good public transit system would, therefore, make

the Valley a more attractive place for young, educated people with valuable skills and potential.

### ***Options are needed***

Automobiles will continue to be important parts of the transportation system for many trips for the foreseeable future. The problem, however, arises when the use of an automobile ceases to be a luxury or a helpful tool, and becomes instead a requirement. When cars are seen as an absolute necessity to travel, many unsafe vehicles and drivers are allowed onto our roads, and policies become tempered to allow such a dangerous state to continue.

By providing an alternative system which is to the greatest extent possible fully competitive with the private automobile, local economies and public health are strengthened greatly. An effective public transport system should not, therefore, be seen as a luxury which must pay for itself, but rather as a necessary public service, like sewerage, snow removal, or police protection.

Furthermore, the better coverage and service provided by the public transit system, the more use and efficiency the system will see. The dividends from a public transit system will not, for the most part, be direct return of cost, but rather will be seen in an improved economic health across the region, and a reduction in other costs in other areas.

## Making It Work: Policies and Procedures for a Great System

Many things go into making a public transit system work. Frequency, ease of use, service area, appearance, and image all combine to make the system a desirable travel mode for residents' shifting travel needs make sure that the service operates at the high standards demanded by the choice riders which the system should serve, central coordination and strong quality controls are crucial.

Public transit systems should aspire to be fully competitive with private automobiles. What this means is that the transit system is capable of serving the transportation needs of all segments of society, not just for certain important trips but also for recreational travel as well. The public transit system can be made to be comprehensive to the extent that it can be used to get to work, to class, to get groceries, to visit friends for an evening barbecue in the backyard, all without unusual difficulties. An effective transit system of this type can be attractive and clean, marketed not only to those unable to use a car but also to the well-to-do as an attractive and viable alternative to a personal automobile.

The Mat-Su Borough's Long Range Transportation Plan indicates that fixed-route transit is infeasible within the Valley.<sup>9</sup> However, this statement is based upon older research which as since been found to be in error. The original research noted that bus service in Chicago, during the Chicago Area Transportation Study, ended when densities decreased below a certain level; however, this conclusion did not take in to account that the study boundary was also a political boundary beyond which the existing transit service was unable to raise operating funds.

A competitive transit system in the Borough would greatly increase the living standard of residents, making the region significantly more attractive to outside investment. It would encourage a significant amount of local

investment, and keep money in the region. An effective transit system would create pride in residents, and offer greater status. A quality transit system using best practice could serve as a model for other areas, creating positive publicity in planning circles nationwide or even worldwide as a positive example to aspire to. By pushing for publicity as a region that “proves that transit can be done well in a low density area in the United States”, the Valley would gain notice and name recognition for the positive values of the region, and it is likely that a perception of quality and high levels of competence would be ascribed to local policymakers.

A transit system able to do all these things is entirely feasible, and has already been achieved in many areas such as Oregon, Vancouver, Paris, Switzerland, and more. The Swiss system covers a large area of low population densities in a manner similar to the Mat-Su Borough, so special attention will be paid to its structure. The Swiss model has also earned mention in manuals of best practice as the primary good practice example of rural transit, and as such many references in the literature refer specifically to it.

In order for a transit system to be fully competitive with automobiles, the service must, to the greatest extent possible, permit users to travel from anywhere to anywhere else, when they want to, in as timely a manner as possible. While the perception of many people is that this is an absurdity, it is regularly achieved in cities with well designed transit networks.

Part of why this seems difficult is because many people think of a journey as comprising a single trip, like an automobile trip. **One should not think of a bus as the analogue to the car; rather, the bus is the analogue to a ROAD.** If a car trip is broken into the individual roads on which the car drives, you will find that most car journeys are composed of several “trips”, many of which are quite

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9 2007. Mat-Su Borough Long Range Transportation Plan pp 6-1

short and could be covered on foot. Likewise, in order to make a complex bus journey, it may be necessary to involve multiple sections of bus trips along high capacity routes. While one may desire buses that pass by wherever one is and goes straight to wherever one wants to go, simulating a car, and while historically many systems were created with this ideal in mind, in practice this has been shown not to function effectively. Such systems require an endless variety of bus lines to travel everywhere, and the bus lines tend to zigzag and divert to pass by all possible destinations to such an extent that the bus travels at an unacceptably slow pace. The number of buses and wide variety of destinations makes the bus system very complex to navigate in practice. This is a common complaint regarding the present single diverted MASCOT route between Palmer and Wasilla, though fleet increases and planned added routes are predicted to alleviate this.

*“A transit line is like a road. It travels across a distance, it crosses other lines and points of interest, and you travel along it from one point or line to another point or line.”*

As a consequence of this, transferring should be free and encouraged, which is difficult in a private model. When two transit lines intersect, it should be made as convenient as possible to transfer. Difficult transfers discourage ridership, while riders on a system designed to enable easy transfers have very little disincentive to transfer. A small number of transit system networks have been developed to optimally utilize these network effects, each performing optimally under different circumstances.

### ***Pulse Timetabling***

The layout of the Borough is most amenable to a transit layout covering much of rural Switzerland which is cited in current best practice manuals and research worldwide, known as a **“Pulse Timetable”**. In a pulse timetable, centrally located transfer points are

developed in the area, and the schedule is constructed in such a way that transit vehicles converge on these points at regular intervals of time. At the transfer points, buses stop and wait while passengers disembark and transfer to other transit vehicles which are waiting at the same stop, all planned to converge at the regular scheduled meeting time. These intervals are fractions of an hour, so that passengers can easily remember the times a bus will stop without needing to consult a timetable.

As schedules are coordinated together, and buses clustered together for the convenience of passengers, inconveniences associated with transfers are minimized. While some may worry that passengers will not want to transfer from one bus to another, such a system makes it clear to passengers that the bus system is going to great lengths to address and minimize this inconvenience.

This is, in essence, a variation of the “Hub and Spoke” systems used by many airlines to serve many cities economically with high frequencies, while using a minimum of aircraft. By utilizing the network effect to the greatest extent possible, service duplication is minimized if not eliminated, and individual routes can be made very efficient, with much less sidetracking and diversion than is experienced by a route which tries to be more comprehensive. This results in significant financial benefits, with great gains in service being available with relatively minor increases in the transit fleet.

These pulses should be coordinated with the timing of the trunk line. Information gathered by MASCOT regarding trip lengths indicates that buses can not reliably be moved from Palmer to Wasilla or vice versa in less than thirty minutes under adverse driving conditions such as peak traffic or snow. Therefore, a pulse frequency of one hour is recommended. The nearest alternatives include a 20 minute pulse with the express bus timed to travel for 40 minutes, or a 15 minute pulse with the express bus timed to travel for 45 minutes. Both of these suggestions would require large increases in



fleet size; they may become practical at some future date presuming large increases in ridership, but a one hour pulse works well with the distances involved to make the system operate economically.

### **Central Transit Centers**

In the Valley, two major population centers are suitable for primary transit center points; downtown Palmer and downtown Wasilla. A minor transfer point of note exists at Four Corners at the intersection of the Palmer/Wasilla Highway and Trunk Road; however, this point does not meet the other criteria of a transit center, and would best be served by a covered bus shelter with posted schedules. These transit points should be located downtown, in the most highly pedestrianized areas of the city. Typically, these points correspond with the original town footprint near the city's library, post office, train depot if applicable, police station, and City Hall. Neither Palmer nor Wasilla appear to be an exception to this rule, as these areas are dense and pedestrian friendly in both cities. By placing a transit center in these locations, foot traffic in these areas will be greatly increased, which should assist the cities with their efforts to enhance the vitality of their core areas and greatly enhance sales in local businesses. In Wasilla, the best area appears to be in the vicinity of Swanson Avenue and Main; in Palmer, the best area would be most anywhere in close vicinity to the Depot - either the Mat Maid property, or Alaska Street between Evergreen and Dogwood. It is possible that a transit station in Wasilla could instead be placed near the intersection of the Palmer/Wasilla and Parks highways; however, it is not a preferred location. This area presently has less potential to become a walking center due to the lack of other streets in the area, and the roads which do exist feature low connectivity. This is because the roads here take the form of cul-de-sac development which greatly increases the length of walking trips, or encourages trespassing in the form of short-cuts.

### ***From the Butte to Big Lake: The tale of a trip***

One might start out in the Butte, near Matanuska Valley Elementary School on Maud Road, at about 7:10 AM. You catch a collector bus to a central transfer point in downtown Palmer, arriving at 7:25 AM. You might then disembark and board the Palmer/Wasilla express bus, which leaves at the same memorable time each hour – 7:30 AM, in this example. While waiting for a bus might be otherwise seen as a hardship, you have no inconvenience even though it is the middle of January; all of the buses are parked close together at the same time. A very short walk on a well-maintained sidewalk to board another warm bus is all it takes, and you are ready to continue on your way. While you were at Palmer Central, you bought a newspaper, which you open up and read while you ride.

That route makes a few stops at major locations, but does not deviate from its route and makes fast time, arriving in Wasilla no more than 55 minutes after it left Palmer even on the worst and most traffic-snarled of days in order to leave every hour. In Wasilla, you find all of the buses again staged together for your convenience, and you are easily able to find the route which extends out along Hollywood Road, leaving at 8:30 AM. Your destination is in Big Lake, quite a long distance from the Butte. As you approach your destination, as you are not quite going as far as the end of the line, you signal the driver. The driver stops the bus at a street sign at the corner to let you out, and walk across the parking lot to your destination. When you arrive, you note that it is not quite 9:30 – you have traveled the entire length of the core of the Borough by public transit in under two and a half hours, without having to pre-plan your trip, make reservations, or wait outdoors for long. You also had the opportunity to read the newspaper, do some work on your laptop, take a brief nap, or write a few notes; that time was much more productive than if you had been sitting behind a wheel, focusing on the tailpipe of the car ahead of you and

watching your fuel gauge sink.

### ***Why we need “Empty buses”: The role of collector routes***

One of the major objections with providing this level of frequency and service is that many routes will appear to be relatively empty, as they are serving as collector services. Collector bus lines, like collector roads, have low levels of traffic and levels of upkeep which are relatively high compared to their actual use. No-one, however, tends to seriously consider statements like “Let's just not bother to plow or maintain Farm Loop Road or Scott Road anymore; there's not much traffic on them anyway.” On the flip-side, arterial lines are often full – because they are well served by collector service. This creates a problem with “free market” solutions to transit, where the arterial routes can find themselves over served by competing carriers, only to wither as passengers find themselves unable to reach the arterials because the unprofitable collector routes have been canceled.

If one realizes that a bus route is analogous to a road, one can see that the need to have “full buses” is a slight absurdity; many roads built with transportation funds are empty for large portions of the day. Were one to, for example, close the entire length of Bogard Road every day between the hours of 7:00 PM until 9:00 AM, for two hours between 2:00 PM to 4:00 PM, and all day on weekends, many people would be upset and inconvenienced. And yet, by demanding that buses prove their necessity by being full, transport planners do this very thing to the bus network. As a private organization, with funding tied to ridership, MASCOT is heavily limited by this consideration.

### ***Service, Quality, and Notoriety: Reputation is important***

Another issue that must be addressed is that of service quality. As noted before, *transit should be competitive with the private automobile*. Many transit riders, however,

have been frightened away from buses by encounters with “undesirable” people, or by stories of these encounters. If buses lose their ridership of choice passengers, they lose support of the most active and influential members of the public and as a result are less able to serve the community. Bus operators should not be afraid to uphold and educate regarding reasonable standards of behavior and appearance among their clientele.

Furthermore, transit must be obvious to residents. Anchorage People Mover buses are all painted in an instantly recognizable color scheme which trains people to notice buses in their community. In Melbourne, however, a number of different bus carriers with differently decorated buses serve a variety of routes. A bus stop sign along one route may look completely different from a bus stop three blocks away, and buses regularly drive past bus stop signs without stopping, as the stops belong to different carriers. The end result is that many people are unaware of transit service that may exist in their community.

Transit vehicles in the Borough should, therefore, adopt some standard appearance which must be used by all transit vehicles in use. Preferably, this appearance should be eye-catching and noteworthy, as a form of advertisement. Buses painted in bright colors and decorated the same would draw attention to the service. Potential users would quickly realize “Those buses are everywhere!”

MASCOT's white buses are, unfortunately, not distinctive enough in this regard, looking similar to other buses in the area used by organizations for non-public uses. Any new entrants into the transit system in the Borough, if uncontrolled, would likely adopt their own personal standards of appearance, further weakening the overall image of public transit in the Borough. The recommendation here is that transit vehicles should have a shared non-white primary color and primary brand, distinguishing shape, or logo. If advertising is done on the outside of the buses, these advertisements should conform to that guideline.



Fare policy can aid in creating increased choice ridership. The goal of farebox policy should not be seen as a pure revenue generating system, but also as a tool to affect the demographics and satisfaction of riders on the system.

It is recommended that sales of longer term passes be highly encouraged through pricing and easy availability. If an individual bus ride is, for whatever reason, of poor quality, it is easy for a person who purchased a single trip or day ticket to resolve not to use the service again. If that user was instead sold a discounted month pass, the bus service will have the remainder of the month to win that customer's loyalty back with their normal good service. Furthermore, certain influential groups should be encouraged to ride. Offering transit passes as an incentive for workers at offices promotes the service to choice riders who may influence others.

Offering heavily discounted or free passes to youth dramatically reduces their perceived need to drive a car and thus reduces accident rates within that age group; it reduces

transportation demands on the school district for extra-curricular transportation; furthermore, it familiarizes them with the system early in life, and exposes their parents to the system. In fact, some transit systems in low population areas have chosen to make the service free, deciding that the cost to gather fares was too expensive to justify given the users of the system and the scales involved. Public support and financial stability is needed to bring these decisions out of the realm of a pure economic input and into the realm of useful planning and policy tool.

In order to deal with these issues, **the public transit system must be coordinated by a single uniform body** which can enforce timetables and which views the entire transit system as a whole, rather than as a collection of individual routes. Collector service, in spite of seeming to be individually unattractive, must be maintained as an aspect of the whole system. Standards of appearance and service must be maintained throughout the Borough for the interest of the transit system as a whole.

## Leading the way: Sculpting the transit organization

Present thinking on the political direction of public transit in the tri-city region (Palmer, Wasilla, Anchorage, and vicinity) is focused on development of a public authority in charge of transit in the region. Under this model, transit service in the MSB moves beyond a non-profit organization to be under a public transit authority umbrella. The transit authority is empowered by the State of Alaska, Municipality of Anchorage (MOA), and MSB with certain legal powers, such as the ability to enforce law on its carriers, the ability to set transit standards, and the ability to pass bonds, as was done in Portland, Oregon by the Oregon Legislature in ORS 267<sup>10</sup>. It becomes a public corporation, similar to Portland's "Tri-Met" which controls and administers public transit. In this option, transit in the Borough becomes secured and now has the powers to more efficiently administer transit services in the area. By granting this authority and power to the transit authority, funding will be much more stable and secure, and needed operational functions will be ?

This option has an advantage in that transit retains its identity as "MASCOT", and does not sacrifice any political capital which may have been developed. It has the disadvantage that planning for transit is located outside of the Borough, causing some potential for poor communication. MASCOT planners will not necessarily have access to the information about developments and projects that is known within the Borough, as mentioned above. However, coordination will be more commonplace due to the Authority holding some land-use planning powers; these will require coordination and data-sharing with Borough planners and the Borough land use structure as a whole. Access to the Borough's GIS system may provide some of the coordination needed in this regard.

Another manner in which this gap may be aided is by the creation and publication of long term transit planning maps, created by joint operation of the land use development planners in the Borough and the transit authority. These plans will indicate where permanent routes will be located. This information can be used by the planners to generate their long range transportation and land use plans.

By publicizing the long term bus services forward in this fashion, market uncertainty will be reduced, allowing developers to more securely make decisions on land development and sales with confidence that they will be able to promise transit access on their developments. Likewise, developers building in areas where the Borough may not be ready to invest infrastructure at that time can similarly see that bus service is not likely to be offered to their developments for many years.

Public accountability can be sculpted during the authority's creation as needed; however, one of the advantages of a distinct office with authority over a transit budget is its potential for stability over election cycles. Citizen and governmental participation should have well specified roles which maximize the abilities of the system to be responsive to public need, while minimizing risks of erratic policy changes which could jeopardize the long term stability required for viability. This might include heavy participation during long range planning phases, but less ability to institute immediate changes which could make the system seem unpredictable and diminish public trust in the stability of the transit network. Public involvement should be focused toward accessibility and a high level of transparency rather than control. Authority staff should not feel the need to pander to popular opinion in favor of job performance.

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<sup>10</sup> ORS267 retrieved from  
<http://www.leg.state.or.us/ors/267.html>

## **Concerns to watch**

There are several points which are desirable to retain in any of these proposals, if possible.

It is important to provide the transit planning body the powers to oversee all transit being provided in the area. As noted, trunk lines can be competitive. When a high official in Switzerland's transit office was asked about the possibility of a private carrier taking over a trunk line, his response was "It wouldn't be allowed!" His reasoning was simple; the trunk lines subsidize the collector lines which feed to it. Maintaining the trunk lines as a core of the transit system is important in order to keep the service from appearing to operate at a significant loss from the collector services. The lucrative and high-traffic aspect of trunk lines can encourage entrepreneurs to try to duplicate trunk line services. While some free-market thinkers might think this to be a reasonable application of a free and competitive market, in reality such competing service providers are simply attempting to siphon money away from the public transit system, capitalizing on public owned transit infrastructure to bypass the system's revenue recovery. An analogy would be with a movie theater which shows movies at a loss, but generates operating revenues through concession sales; competing providers on the trunk would be similar to an independent food vendor moving into the theater free of charge and attempting to undercut the theater's popcorn sales.

Taxi services, being similar to collector routes, should be encouraged to stop at the transfer points. It would be ideal to arrange for transit fares and fares paid for taxi services to be interchangeable, by allowing bus passes to discount and be discounted by taxi fare purchases.

It is good to have the transit planners located organizationally near the planners of highways and the land use planners if possible; physical proximity (sharing office space) can substitute adequately for this. This could suggest shifting some land-use or transportation planning duties away from the Borough and into the Authority. In

Melbourne, public transit was moved to the opposite end of the organizational chart from VicRoads, the highway authority; as a result, the road network and the transit network rapidly began to push the land use plans of the city in very different directions, and expensive infrastructure was developed by each based on entirely conflicting development goals.

## **Timing – Soon as possible, all together**

The Executive Director of MASCOT has expressed that it would be easiest to remain as a private non-profit until the re-authorization of SAFETEA-LU, the federal transportation bill, due to be examined on September 30, 2009. Due to scheduling and deadlines, it is likely to take approximately this length of time before a transit authority structure is completely approved and prepared. Discussions with the Community Transportation Coalition (involving the borough, cities, the Alaska Department of Transportation (AKDOT) and MASCOT) also identified 2010-2012 as a transition period in that population densities in the Borough core may reach a level that requires shifting to a Metropolitan Planning Organization. Federal funding to transit would be distributed differently than now occurs.

Until these shifts take place, it will be important that the cities and the MSB work in partnership with MASCOT in regards to financing hurdles and the like, in order to ensure expanding and stable service and keep transit on track with the region's transit goals.

Action to increase transit service in the Borough will become a much higher priority as fuel prices increase, and political pressures can be leveraged to empower rapid and major changes in short periods of time as the political ability of those involved to work with current events allows.

Proposals for major improvements to transit should always be created and held ready to take advantage of fuel shocks, as well as the incremental work of improving transit. In

short, if one creates a proposal to add five buses, one should also have ready a proposal to add twenty buses and accompanying press statement prepared to present instead should events in the Middle East, Nigeria, Russia, or elsewhere along the global oil production and distribution network suddenly flare up and create a sudden spike in gasoline prices. Future events are likely to become more dramatic and unpredictable as global demand for petroleum approaches and exceeds global supply. This creates unforeseen opportunities to expand transit, but at the same time makes it harder to create a timeline with adequate predictive power.

### **Cost – Affordable!**

A pulse timetable system covering the Valley would be efficient, and not require substantial infrastructure development. Specific requirements would include two transfer centers – which would not necessarily require more than use of the parking along the side of a street or a paved empty lot, sign standards and signage for on-street bus stops, several standard buses added to MASCOT's current fleet, and probably a handful of covered bus shelters at appropriate locations such as the intersection of Trunk and the Palmer/Wasilla, and the entrance to Mat-Su College.

In a discussion with the Operations Manager of MASCOT, a preliminary estimate of cost to operate a quality pulse timetable system covering the core of the Valley, including almost all major roads in Palmer and Wasilla and extending as far as Sutton, the Butte, Hatcher Pass, Point Mackenzie, Houston, Anchorage, and Big Lake as described above was estimated at roughly \$7-8 million annually from all combined sources. MASCOT's 2008-2009 budget was cited at approximately \$1.7 million. It was also noted that increasing funding from the MSB, Palmer, and Wasilla would unlock significant additional matching funding from federal sources. Adding routes, either long-haul routes to locations such as Talkeetna or the Chickaloon corridor or additional infill into residential areas to enhance the accessibility

of the system, would require extra funding but can be seamlessly worked into the system design. Capital to operate these routes, such as added buses and garage facilities, has been described as easy to find funding for.

This does not include the cost of adding **on-street stop signs** to the roads in the Valley, an improvement which the Operations Manager estimated could in and of itself increase the service of MASCOT buses by 600%. **The simple addition of signs allowing MASCOT buses to stop along the road rather than pulling in to businesses would allow them to serve roughly three times as many places and people in half of the time that they presently need.** The intersection of the Parks Highway and Palmer/Wasilla Highway, for instance, was described by MASCOT planners as a place where buses spend between fifteen to twenty minutes navigating in and out of parking lots and across traffic, which the addition of two signs would reduce to less than two minutes

In comparison, the cost of the Trunk Road Extension is estimated at 35 to 40 million dollars<sup>11</sup>. Highway spending statewide in 2008 is forecasted to cost \$415 Million.<sup>12</sup> The moneys from any significant road project, in short, could be invested and fund a world-class, high quality public transit system covering the Mat-Su Valley for decades to come.

The increase in funding would purchase dramatically increased transit service, with a far greater capacity than a linear estimate would indicate.

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11 January 21, 2008 presentation to MSB Planning Commission

12 "Alaska's Construction Spending: 2008 Forecast" pp 2

## Conclusion

“When are we going to get a bus service? I've been wanting one, I'd ride it, lots of people need it...” These words have been said many times by residents in the Borough in the past several months. A large amount of demand exists, and a good transit system would more than pay for itself in the growth and improved economic health it would create. The time to act is now; families are feeling the pain at the pump, and waiting for a real alternative.

It is up to us to create a good transit system to meet this need, one which works as a coherent system, planned by a single agency able to view the big picture, and which meets the needs of the community for an alternative to their cars. The belief that the people of the Borough have a “love affair” with their cars is untrue, as much as it might seem that way sometimes; rather, the sentiment heard from most people asked is “Everyone else must love their cars – but I hate driving.” Though it can be hard to imagine such a large change, it is completely viable – and has been done before. Let's do it here in the Matanuska-Susitna Borough.

## Appendix A: Basic system design, stage I

The basic, first major target transit system of the Borough should be a pulse timetable system, with centers in downtown core Palmer and downtown core Wasilla. Both cities may have major transit park and ride facilities as well.

Transit centers such as this facility should be designed with a large area for the arrival and easy transfer of platoons of buses; they should have a lobby or access to businesses where travelers can stop to get information and enjoy art, tourist materials, food, or the like; they should have MINIMAL, OR ZERO PARKING. Cars which wish to park to access the transit system are advised to travel instead to the Park and Ride center for the city. Cars can park at anyplace where buses can be met if desired, and with comprehensive coverage, this would cover much of the Valley. Minimal lots with low cost facilities can be distributed over the area for these trips, as well; these lots should have a small parking lot, secure bicycle parking (preferably bicycle lockers), and a covered shelter, and can be located at the edge of subdivisions which might be difficult to service directly.

In Palmer, two promising locations for a transit center are visible:

The transit center in Palmer could be located on the Mat Maid property; the land is available, central, and historical. An option for rail access is available at this point. This would be a central lot for buses, a rehabilitated historic building with a lobby containing art, information, and businesses to serve waiting commuters such as a coffee shop.

Another option available for a transit center in Palmer would be to pedestrianize the segment of Alaska Street between Dogwood and Evergreen, restricting access to automobiles in favor of pedestrian amenities and a Portland-style "transit mall". This segment of Alaska Street is highly pedestrian friendly, containing a number of popular local

businesses which highlight the pedestrian-friendly aspects of Palmer.

Palmer's Park and Ride will be the Multi modal center at the Fairgrounds. During fair time, cars are advised to park elsewhere; a fair season collector route can be put in place to collect park and ride passengers from some other promising location, as needed.

In Wasilla, a number of promising locations were visible on a tour of the area, primarily nearest to Swanson Ave. near the post office, library, and City Hall. It is recommended that a lot be acquired in this area for construction of a transfer station.

Conversations with the Planning Director of Wasilla indicate that the present plan is to construct a Multimodal Center in the vicinity of Wasilla Airport, the sports complex, and the museum of transportation. This location, based on development patterns, would appear to be best suited for a park and ride type station.

All buses in the system will converge on one or the other transit centers on a schedule allowing a layover of approximately five minutes, to be adjusted as experience and conditions demand.

Passengers will disembark or transfer well within walking distance of downtown, the Borough offices, City Hall, and more. At #:29, all buses in the lot will start their engines, and at exactly thirty minutes past the hour, every bus in the lot will pull out simultaneously. This time is chosen for two reasons. First, it is easily memorable. Second, many workers are expected to be at work at the hour exactly. By staggering the transit times at half-hours, this offers time for them to travel from the bus to their workplace comfortably, rather than rushing short distances in a short period of time or being forced to wait large portions of an hour. This service will operate for the entire day. In fact, some buses might continue on this schedule

24/7, in order to service commuters with unusual schedules, people exiting the bars, people returning home after evening social visits with friends, and the like.

One of these buses will be an express bus or group of buses dedicated to going to the opposite city's center along a central, "spine" route. With a 1 hour pulse, certain other fixed, on-street stops can be added to this route.

Another bus will travel directly to the Park and Ride facility, load and unload, then continue onward on its route. At the end of this route, it will stop at the P&R facility, load and unload, then proceed to the transit center at the appointed pulse time.

Many of the buses will have fixed routes on fixed timetables. These schedules will be visibly posted on bus stop signs, increasing the visibility of the system. Some buses, in order to service more dispersed areas in the Borough, will "roam", serving the role of MASCOT's demand response buses at present with pickup and drop-off at user-defined places arranged with dispatchers. These roaming buses will be dispatched and planned to return to the center at the pulse times, the same as all buses in the system.

A possible beginning layout of this schedule is as follows:

### ***Spine:***

Palmer Central transit center to Evergreen (becomes Palmer/Wasilla), west along the Palmer-Wasilla to Trunk Road, south to Parks Highway, west to Crusey Street, north to

Swanson, west to Wasilla transit center. Stops at Palmer Central, Three Bears (access to Pioneer Peak Elementary), Mat-Su College, Mat-Su Regional Hospital, Trunk Road Park And Ride, Wal-Mart, Sportsman Warehouse (with on-street stop and crossing if available), Target/Fred Meyers (with on street stop and crossing if available), Wasilla Central. Eastbound route is identical, but street stops are mandatory at Fred Meyers, Target, and Sportsman Warehouse. Better stop amenities are highly desirable at the Four Corners (Three Bears) location, as this will serve as a transfer center between the spine and a Bogard collector.

Service is proposed to extend to terminus points in Anchorage, Sutton, the Butte, Big Lake, Port MacKenzie, Hatcher Pass, and Houston, with coverage of Wasilla Fishhook, Palmer Fishhook, Trunk, Seldon, Lucille, Schrock, Springer Loop, Hollywood, Fairview Loop, Knik-Goose Bay Road, Vine, Church, Lucas, Spruce, Seward Meridian, Bodenburg Loop, and Pittman. Buses would pass all public schools in the Palmer and Wasilla area.

The Operations Manager of MASCOT believes that this system could be run at a suitable level of service for less than \$8 million annually from all combined sources; their 2008-2009 budget is estimated at \$1.7 million. This figure is far lower than the cost of road construction and maintenance on any given year. While this does not include the cost of capital for new buses and facilities, MASCOT's Operations Manager noted that funding for capital is relatively easy to find.

## Appendix B: Future Possibilities for system expansion

Several options exist for ways to increase the service speed of the basic system, beyond adding additional collector routes to increase the coverage. These are described as possible future investments which can be explored as medium or long range goals.

### ***Frequency Increases***

By the structure of a pulse timetable, increases in service frequency can take the form of clock face fractions. From 60 minutes as proposed, pulses can be run at 30, 20, 15, or faster.

Discussion with the Operations Manager of MASCOT indicates that under present conditions, it would not be possible to reliably get a bus between Palmer Central and Wasilla Central in less than thirty minutes. While this time could often be achieved, it leaves insufficient time to recover from travel delays. This means that a 30 minute pulse cannot at this time be examined. A 20 minute pulse, with a 40 minute spine, is viable with the current layout of the Valley; this would require the bus fleet to be almost tripled in

size. The following pulse frequencies all appear to be workable without significant roadway modifications, with an increase in size of the bus fleet to allow a bus to start routes at the pulse interval even though the route may be longer than the bus can complete during a single pulse. At frequencies higher than this, likely only justifiable with a regional population higher than 300,000, it is more reasonable to switch to a random access schedule, with the trunk line no longer using a fixed timetable as its frequency is often enough to make a schedule unnecessary.

With signal priority, bus lanes, and other similar amenities, these times could be shortened to some extent.

- 60 minute frequency, 60 minute trunk (route) – default as defined in this report
- 30 minute frequency, 60 minute trunk
- 20 minute frequency, 40 minute trunk
- 15 minute frequency, 45 minute trunk
- 12 minute frequency, 48 minute trunk
- 12 minute frequency, 36 minute trunk – requires improvements to the roadway to offer priority for transit vehicles

### ***High Speed Commuter Rail Crossover***

The Alaska Railroad contains rail lines which extend into both Palmer and Wasilla. With discussion of the Anchorage Commuter Rail, it may be possible to configure routes which connect Palmer and Wasilla centers as well as the Anchorage trip. This would be, in essence, a light rail link between the two cities. While the population of the Valley may not presently support this, rail has had a strong proven positive effect on development, and the Borough is a very rapidly developing area.

Therefore, it is advised that provision for this plan needs to be included in discussion of the commuter rail development, in order to retain the option to add it in a quite foreseeable future in which it is very justifiable. An overpass or underpass could be constructed to direct DMU's or light rail carriages across the Parks Highway to Wasilla Central. In Palmer, the existing rail extends through the city past the depot, which is adjacent to both proposed transit centers. This would provide a rail



connection connecting both transit centers, which if operated at high speeds using bridges and underpasses to avoid conflicts with auto

### ***ValleyRapid Busway***

The Borough contains a strong fiscally conservative mindset, and a rail corridor may be deemed expensive. It is recommended that a rail corridor be proposed first, as rail can be a very efficient system, and public may be present at the time. If a rail corridor is resisted, a system similar to that devised in Eugene, Oregon can be implemented instead. This would consist of a road-like corridor, with a high design speed, designed for two lanes, connecting as nearly as possible to the Park and Ride terminus. This route would replace the original P&R shuttle route, as the bus would continue to the transportation centers.

This right of way would be restricted; only two classes of vehicle would be permitted on it. Those classes are A: Transit vehicles, and B: Emergency vehicles (Ambulance, fire, etc.). All other vehicles on this route would be fined severely. The route would be designed to be used extensively by heavy vehicles traveling at the highest speeds available.

Stops would involve a widening of the route, to stops on the edge of the route. With the exception of the point of origin and destination, only those stops which are necessary access points for emergency vehicles would contain any exit from the route; for instance, an exit might be added at Mat-Su Regional Hospital, feeding directly into the ambulance/emergency section of the hospital.

The buses run on this route are to be completely stock and not distinguished from any other bus in the system. This is vitally

### ***System 21 Monobeam Aerial Rail***

One promising technology is that of the monobeam railway. This consists of an elevated beam suspended on pylons. Unlike a

traffic, should easily support a 30 minute pulse frequency.

important for completion of the system, as it has been shown that branding of the buses tends to doom the routes in practice.

The route itself will be branded; one possible name would be "ValleyRapid", as that name invokes imagery of speed, and nature. The route will be designed in a manner which is visually distinctive. For the sake of safety, this right of way will be separated as much as is feasible; if it is necessary for the route to cross surface streets, a treatment similar to that given to a train will be applied, with the road closing and being gated in preparation for transit and emergency vehicles crossing.

The route selected should be designed in such a manner that it can potentially be converted to heavy commuter rail at some distant future point, but such a change is not expected to be necessary for some time; vehicle platooning on a system of that nature can increase the capacity to a significant extent, overlapping the lower bounds of capacity of a light rail system.

This route would most likely follow the Glenn Highway to the interchange, then return along the Parks Highway, likely using the current frontage road right of ways where available.

By allowing buses to travel at freeway speeds on a dedicated roadway, a 30 minute frequency can be achieved. This facility would also allow for improved dispatch of emergency vehicles.

traditional elevated rail, the monobeam uses a pair of rails on either side of the central beam; trains hang from the side of the beam. This

system has advantages of lower cost and more compact switching and cornering abilities. Primary to our purposes, the monobeam is elevated, allowing it to be placed above an existing road right of way and therefore removing the need for extensive and politically problematic right of way acquisition. The current example of this technology is the System 21 system, which claims a construction cost of \$20-25 million

per mile. One option for consideration would be to run one of these down the center of the Palmer-Wasilla Highway, then along the Parks to Wasilla Central. End loops can be placed at the multimodal station at the Palmer Fairgrounds, which would add to the system's value as an attraction, and at the Wasilla Intermodal Station Park And Ride. Either of these locations might be suitable as maintenance centers for the system.

## **Appendix C: Other options for centralized organization**

There are several possible structures that a re-organization of transit operations might take. At this time, a public transit authority appears to be most likely, however, other options exist which may be examined if circumstances require. These will be described in order from the least Borough involvement to the most.

### ***Option 1: Non-involvement (Do nothing option)***

MASCOT remains a non-profit private entity, delivering infrequent direct route service with inefficiencies caused by lack of staff, buses, funds, and no overall coordination with other providers' organization. Under this situation the MASCOT will continue to struggle each year to stay solvent. As the Borough grows, other carriers may appear, running on minimally coordinated or uncoordinated schedules. Competing carriers will likely use schedules which do not connect in a coherent manner with other carriers; brand identity of transit vehicles will be low and confidence in the system will be hampered by this illegibility. Transfers will be difficult and expensive, creating unnecessary demand for trunk line services to extend into areas better served by collectors at the cost of slower and more costly service. This option is not advised.

### ***Option 2: Partnership***

MASCOT remains a non-profit private entity, but takes steps to share responsibilities with the Borough. The Borough offers financial and administrative assistance and limited use of Borough facilities, allowing MASCOT to increase its services and coverage; in return, MASCOT works with Borough planners to serve routes and areas prioritized by the Borough in order to encourage accessibility in choice areas.

This is a likely intermediary step. It requires very little adjustment and can be enacted immediately, and will result in an improvement in service. In the long run,

however, it contains inherent inefficiencies caused by MASCOT's funding system and independent nature. While MASCOT can work with the Borough on many things, it lacks financial stability which might be offered by a stronger connection to the Borough or by bond and taxation creation powers. Furthermore, MASCOT planners will have limited information about developments in the Borough, and may be unable to coordinate with land use and road planners easily; this model does not inherently empower them more than any other businesses when dealing with planners unless agreements are made and enforced. Additionally, MASCOT's non-governmental nature exposes it to competitive forces within the funding process and reduced access to state and federal funding. This leaves MASCOT in continual danger of losing funding on a year to year basis.

### ***Option 3: Transit Authority***

Under this structure, a public corporation is created and empowered by the legislature with legal powers needed to function. The authority is charged with operating the transit service, and is separate from existing power structures, charged with limited duties with State authority. Systems of accountability are designed in the authorizing legislation. Typically, a state level Transit Authority empowers regional branches, which may be newly created or a promoted status of an existing office or provider. Regional branches administer transit services directly, as they have legislative powers specifically to use as tools for this purpose. This plan is currently preferred by the Mat-Su Borough and Municipality of Anchorage decision makers.

A more modest potential alternative would be to create a local transit authority, empowered not by the State, but by the regional governments. This could be done to, for instance, empower MASCOT within the borders of the Mat-Su Borough with transit authority powers in the absence of State

support. A Borough level Local Transit Authority would be fully able to function and carry out best practice, though a potential for complexity and conflict would be possible with the workings of the proposed Anchorage Commuter Rail system.

#### **Option 4: Office of Transit Planning**

A department is created within the Mat-Su Borough or State of Alaska government, which is in charge of the management and administration of public transportation. This office is charged with setting standards, planning routes, and collecting fees for transit vehicles throughout the Borough. Once the office has decided on routes, they bid with outside carriers to serve those routes, being paid directly by the Office of Transit. These carriers are scrutinized by the Office in order that the office's standards of quality control are met. MASCOT's Board of Directors becomes an advisory board to the new office, if it is retained at all, and MASCOT would likely become a contract service provider.

This structure shifts the planning and administrative tasks into a central government division of planning, with all that entails. Cost efficiency is preserved by the use of competitive outside contractors, while the overall structure is controlled centrally.

This may contain potential pitfalls with poorly performing contractors. A system of competitive transport tendering was used in Melbourne, with poor results; specifically, public transit providers underbid services to gain contracts, and then threatened to cut agreed-upon service unless their contracts were renegotiated.<sup>13</sup> While it is possible to avoid these problems, it is likely to be difficult, and may require more staff and overhead than simply running the system centrally to begin with<sup>14</sup>. Various forms of

performance-based contracting and agreements have been explored, but a discussion of these is beyond the scope of this document.

Under this structure, full access to governmental resources is gained. Public accountability will be of the same structure as other government departments, for better or worse. Controversial decisions made by the Office will be placed on the government as a whole. Some existing political identity will be lost.

#### **Option 5: Borough Transit Service**

The Mat-Su Borough creates a department of Public Transit. Buses are purchased by the Borough, and Borough employees are hired to drive them. MASCOT's Board of Directors becomes an advisory board to the new office, if it is retained at all. The Borough plans and operates the entire transit system internally as a government service.

This has the advantage of placing complete control in the Borough, with access to all of the Borough's resources. It has the disadvantage that government level purchasing, hiring, and so forth can occasionally be more expensive or inefficient due to any existing restrictions on purchasing procedures and funding. This is the type of system currently in use in the Municipality of Anchorage; People Mover is an arm of the Municipality government.

#### **Preferred strategic directions**

In MASCOT's current operating strategy of running only diverted on demand buses, the power of a transit authority or governmental office is not available. However, MASCOT's current operating strategy, because of limited, insecure funding and legal restrictions, is inefficient and does not serve users to the full extent possible under other organizational structures discussed.

MASCOT needs a larger fleet to run fixed route vehicles. It needs operating expenses to

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13 Mees, P "Privatization of Rail and Tram Services in Melbourne: What Went Wrong?" in Transport Reviews, Vol 25 No. 4 July 2005, pp 446

14 Kain, "The Pitfalls in Competitive Tendering", main thesis

run its fleet in spite of fuel costs. It needs governmental action to allow for bus facilities, stops, and signs on the streets. It needs planning action to connect its routes with regional planning goals. Each of these steps mandates a closer tie to local governments.

Therefore, the plan I encourage is this:

The MSB, Palmer, and Wasilla must assist MASCOT greatly with fleet expansion and operations. Fixed pulse points and on-street stops should be moved for and acquired with the assistance of the Borough and the twin cities. On-street stops do not presently exist because of a lack of appropriate engineering guidelines, and MASCOT buses are not legally allowed to stop on the street unless stopping at an official stop. In discussions with MASCOT, the current system's speed could be doubled, and the coverage of stops tripled at the same time, simply by allowing MASCOT buses to stop at street corners to allow passengers to board and disembark. This represents a potential 600% increase in efficiency at very little cost. A draft document is being examined for this purpose, based on the guidelines used by People Mover; it is of

vital importance that these be put in place and acted upon immediately.

Land Use planning and MASCOT should work together along with Transportation, using these guidelines, to decide on appropriate placement of future fixed route service. MASCOT will need more authority to enact these, due to the divergence of the goals of "provide effective transit on fixed routes on a comprehensive schedule" and "keep buses filled in order to preserve and conserve existing funding sources".

Present direction is to solve this by the creation of an Office of Transit created by an inter-governmental agreement between the Mat-Su Borough and Municipality of Anchorage. This office would serve as a funding clearinghouse and contract with service providers in the tri-city area to provide services. The intention is to then gather authorization from the State of Alaska to create a state level transit authority, which would adopt the office and providers as a regional authority.

Provided best practice is observed, this is an acceptable plan.

## Appendix D: Transit Authority

In MASCOT's current operating strategy of running only diverted on demand buses, the power of a transit authority is not needed. However, MASCOT's current operating strategy, because of limited and insecure funding and manpower, is inefficient.

MASCOT needs a larger fleet to run fixed route vehicles. It needs operating expenses to run its fleet in spite of fuel costs. It needs Borough action to push for bus facilities on the streets. It needs planning action to connect its routes with Borough planning goals. Each of these steps mandates a closer tie to the Borough.

Therefore, the MSB, Palmer, and Wasilla must assist MASCOT greatly with fleet expansion and operations. Fixed pulse points and on-street stops should be moved for and acquired with the assistance of the Borough and the twin cities. On-street stops do not presently exist because of a lack of appropriate engineering guidelines, and MASCOT buses are not legally allowed to stop on the street unless stopping at an official stop. In discussions with MASCOT, the current system's speed could be doubled, and the coverage of stops tripled at the same time, simply by allowing MASCOT buses to stop at street corners to allow passengers to board and disembark. This represents a potential **600%** increase in efficiency at very little cost. A draft document is being examined for this purpose, based on the guidelines used by

People Mover; it is of vital importance that these be put in place and acted upon immediately.

Land Use planning and MASCOT should work together along with Transportation, using these guidelines, to decide on appropriate placement of future fixed route service. MASCOT will need more authority to enact the plan in step 3, due to the divergence of the goals of "provide effective transit on fixed routes on a comprehensive schedule" and "keep buses filled in order to preserve and conserve existing funding sources". This may come in the form of an RTA. MASCOT could be absorbed into the RTA or contract out its services to the RTA. Either method would provide an authority or office charged with fulfilling the directives thus generated.

The RTA would provide the powers needed to complete the building infrastructure goal. Thus, like the Port Authority or KABATA, the Transit Authority may be based in part in completion of some infrastructure project; the pulse points themselves can also be used as this justification, which is preferable; the Authority should in the end be managing the points in any case.

The goal of this process is to quickly and in an easily understood fashion make the shift from being a private entity to being seen as a vital service which must be empowered by government.

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