

# MEMORANDUM

CITY/BOROUGH OF JUNEAU  
155 South Seward Street, Juneau, Alaska 99801

**DATE:** March 8, 2012  
**TO:** Planning Commission  
**FROM:** Ben Lyman, Planner  
Community Development Department



**FILE NO.:** AME2012 0002 and AME2012 0006

**PROPOSAL:** Revision of sections of CBJ 49, the Land Use Code, to increase residential density limits in select zoning districts, and to provide for development bonuses; and,

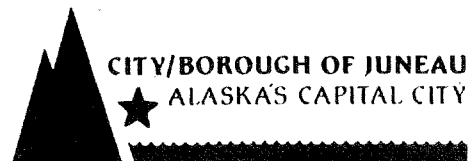
2012 Update to the Comprehensive Plan of the City and Borough of Juneau

The City and Borough of Juneau Code states in CBJ 49.10.170(d) that the Commission shall make recommendations to the Assembly on all proposed amendments to this title, zonings and re-zonings, indicating compliance with the provisions of this title and the Comprehensive Plan.

**Applicant:** Community Development Department  
**Property Owner:** Boroughwide  
**Property Address:** Boroughwide

## ATTACHMENTS

Attachment A Potential Transit Oriented Nodes and Corridors Map  
Attachment B Comparing Transit-Oriented Development Sites by Walkability Indicators, *Transportation Research Record: Journal of the Transportation Research Board, No. 1887*, TRB, National Research Council, 2004  
Attachment C Transportation Tech Sheet: Ped Sheds, Congress for the New Urbanism, [http://www.cnu.org/sites/www.cnu.org/files/CNU\\_Ped\\_Sheds.pdf](http://www.cnu.org/sites/www.cnu.org/files/CNU_Ped_Sheds.pdf)  
Attachment D Airport Node Map and Metrics  
Attachment E Mallard Street Node Map and Metrics  
Attachment F Mendenhall Mall Node Map and Metrics  
Attachment G DRAFT Transit Oriented Corridor Map showing LC- and GC-zoned properties, previously presented to the Planning Commission on February 14, 2012 under AME2012 0002 as Attachment D



## **BACKGROUND**

During the February 14, 2012 Planning Commission Committee of the Whole meeting, commissioners indicated that they were interested in utilizing the concept of Transit Oriented Nodes instead of Transit Oriented Corridors to focus development in particular portions of the borough. This memorandum discusses Transit Oriented Nodes in general, as well as investigating the relative appropriateness of each potential node for becoming the center of a walkable neighborhood.

Transit Oriented Nodes are clusters of Transit Oriented Development around particularly well-served transit stops; typically, commuter- or light-rail or Bus Rapid Transit (BRT) stops serve Transit Oriented Nodes (TONs), as these service types are characterized by infrequent stops along their routes.

Transit Oriented Nodes focus development on discrete locations and their immediate environs, with the most intense development closest to the transit stop and gradually reduced intensities of use over a  $\frac{1}{4}$  to  $\frac{1}{2}$  mile walking distance from the stop.

Two sets, or models, of potential TONs exist; one based on existing transit service, and another based on the Transfer points of the trunk route in the Optimum Scenario of the 2008 Transit Development Plan. Existing transfer points or express route stops are at the Downtown Transportation Center, Federal Building, Nugget Mall, Juneau International Airport, and at the University of Alaska Southeast (UAS). The trunk route would essentially serve as a BRT service, with local circulators connecting to the trunk route at the Downtown Transportation Center, Federal Building, Bartlett Hospital, Wal-Mart, the Mendenhall Mall, and DeHart's. These locations are shown in the attached map, with  $\frac{1}{4}$  and  $\frac{1}{2}$  mile radii around each TON point.

In Transit Oriented Development, be it in a node or along a corridor, the walkability of the neighborhood and how each development relates to the pedestrian realm - particularly the pedestrian connections between the transit stop and the development - is of critical importance. Determining how walkable a given neighborhood is requires consideration of the network of routes available, the quality of the streetscape, the distances between destinations in the neighborhood, the types and variety of uses in the neighborhood, the topography of the area, and more. Planners and engineers have worked to develop models and metrics to measure the walkability of a neighborhood, and although many complicated models exist, a very simple tool with this same purpose is available free on the internet; the WalkScore ([www.walkscore.com](http://www.walkscore.com)) is given for each potential TON to give an indication of the walkability of each site.<sup>1</sup> Additionally, as a means of evaluating the entire set of potential TONs, the average WalkScore for those sites under each model of TON selection is also listed.

---

<sup>1</sup> It should be noted that because WalkScore utilizes data in Google Maps, uses that are listed incorrectly in Google Maps, or uses that are not listed at all, will affect the score of a location. A park or restaurant that is not listed will reduce the score from what it should be, and a business that is listed at a residential address will increase the score beyond what it should be.

The two models of potential TONs are discussed below, with obstacles and opportunities listed for both models. Following discussion of the models themselves, each site is discussed, and both obstacles and opportunities are listed for each site.

#### Existing Transfer Points and Express Stops

Existing transfer points and express stops have the benefit of currently being served by frequent transit service, and seeing high levels of ridership. Riders are already accustomed to route alignments, and although facilities may need to be upgraded and capacity increased to accommodate growing demand, such upgrades and increases to service can be phased in as demand grows. However, in many regards the current locations of transfer points and express stops limit the potential for growing or improving the efficiency of transit service.

The downtown transfer points and express stops are within ½ mile of all development in downtown Juneau other than the most northwesterly lots in the Highlands Addition. This essentially makes downtown Juneau, in its entirety, an existing TON. With high residential densities allowed in much of downtown, and mixed use development permitted in even more of the area, there is little reason to make regulatory changes for this node in particular; modifications to height and density limits in the MU2, GC, and LC zones will affect this node.

Unfortunately, there are no existing express stops or transfer points between the Federal Building and the Nugget Mall and Airport; this gap of approximately eight miles skips all of Lemon Creek and Salmon Creek. The express stop at the Airport is also not a particularly useful node location, as it is separated from non-Airport property by Jordan Creek and protected wetlands, albeit with a path connecting the airport area to the privately-owned properties.

The Nugget Mall, arguably one of the most important stops in the Capital Transit system, serves both as an express stop and a transfer point between all routes other than those serving Douglas. Sandwiched between automobile sales lots and the Nugget Mall, there is little opportunity for immediate redevelopment near this stop. Any new residential development would likely occur at the St. Vincent De Paul complex, or along Airport Boulevard, and not in the immediate proximity of the stop. If market forces encouraged the redevelopment of the automobile sales lots, those uses would need to be accommodated elsewhere in the borough.

UAS, as a major destination with housing, jobs, and educational services close to a mixed-use village (Auke Bay), is a prime location for a TON. The ¼ mile radius around the stop includes nearly the entire area from DeHart's to Fritz Cove Road. The ½ mile radius includes some UAS student housing, the Auke Bay Post Office and the housing to its south, the northerly portion of Fritz Cove Road, and Glacier Highway along Auke Lake to the base of Pederson Hill.

#### WalkScore of Potential TONs:

Downtown Transportation Center (100 Main St.) – 91 Walker's Paradise  
Federal Building (921 D St.) – 86 Very Walkable  
Nugget Mall (8717 Mallard St.) – 75 Very Walkable

Juneau International Airport (1800 Shell Simmons Dr.) – 69 Somewhat Walkable  
UAS (11022 Auke Lake Way) – 32 Car Dependent  
Average: 70.6

Most of the TONs under this model are at least Somewhat Walkable according to their WalkScore. These sites are already serving as transfer or express stops, and the existing built environment – including the diversity of uses within a walkable distance of the stops – reinforces and complements the high level of transit service at these points.

#### Optimum Scenario Transfer Points

Although most of the Optimum Scenario transfer points are not currently served with a high level of transit frequency, they are all served by transit with headways of 30 minutes by local routes, and some are also served by or near existing express routes. As a vision for the future, and a tool to bring about development changes that support changes to transit service, creating TONs around Optimum Scenario transfer points makes good planning sense.

Both the Downtown Transportation Center and the Federal Building are listed as transfer points in the Optimum Scenario; the discussion of downtown Juneau functioning as a TON above applies to this set of potential nodes in the Optimum Scenario model as well.

Bartlett Hospital, or at least a location in its vicinity, would become a transfer point between the trunk line and the Lemon Creek and Downtown local routes under the Optimum Scenario. It is currently served by the #3 and #4 routes. This area is currently developed with a mixture of uses, with industrial, office, medical, shipping, multi-family residential, storage, restaurant, and visitor destination uses all within ¼ mile of the stop; single-family residential, retail, and recreational uses are added to the mixture within ½ mile of the stop. Unfortunately, a portion of this area is within the Salmon Creek dam inundation area, which would be flooded with up to eight meters of water in the event of a catastrophic failure of the Salmon Creek dam. Any increase in residential density in this area needs to be carefully sited so as to not put residents at risk of flooding.

Wal-Mart, located between Glacier Highway and Egan Drive at the Glacier Highway Access Road, has easy on-off access from Egan Drive and from Glacier Highway, and will make a convenient transfer location. It is currently served by the #3 and #4 routes. Developed with a big-box store and adjacent to a variety of housing types, including subsidized rental units and mobile homes, within ¼ mile of the stop, this location is also within ½ mile of the Juneau Police Department, Dzantik'i Heeni Middle School, a potential elementary school site, and the Department of Transportation/Public Facilities Southeast Regional Offices as well as industrial uses and additional housing. This area contains undeveloped and underdeveloped properties in a variety of zoning districts. Increased residential density in this area risks exposing additional residents to the sometimes noxious odors from the neighboring landfill, as well as heavy traffic impacts and other impacts from potentially incompatible uses.

The Mendenhall Mall stop is along a “road” running through privately-owned property that is developed primarily as a surface parking lot in the stop’s vicinity. Although the owner of the property supports keeping a stop at that location, they have opposed the development of formal waiting areas in their parking lot beyond the single shelter on the north side of the road. Designated as a Mixed-Use area in the Comprehensive Plan, the Mendenhall Mall and neighboring Vintage Park have the capacity for redevelopment and continued development of underutilized properties, as well as prime access to and from Riverside Drive, Egan Drive, Glacier Highway, and the Mendenhall Loop Road. This stop is currently served by the #3 and #4 routes. In addition to the Mendenhall Mall and Vintage Park properties, residential, recreational, and educational uses exist within ¼ mile of the stop. Many more residences, vacant properties, commercial uses, recreational, and educational uses exist within ½ mile of this stop.

DeHart’s, a convenience store/gas station located at the intersection of Glacier Highway and the Back Loop Road, is within ¼ mile of most of the UAS campus, in addition to being within ¼ mile of the Auke Bay Post Office, Auke Bay Elementary School, and the “village center” of Auke Bay. This stop is within ½ mile of most of the residences in the Auke Bay area, including some UAS Student Housing. This area is currently served by the #3 and #4 routes as well as by the nearby express route stop at UAS. There is potential for redevelopment or development of underutilized or vacant properties in this area.

WalkScore of Potential TONs:

- Downtown Transportation Center (100 Main St.) – 91 Walker’s Paradise
  - Federal Building (921 D St.) – 86 Very Walkable
  - Bartlett Hospital (3268 Hospital Dr.) – 29 Car Dependent
  - Walmart (6481 Glacier Hwy.) – 51 Somewhat Walkable
  - Mendenhall Mall (9101 Mendenhall Mall Rd.) – 78 Very Walkable
  - De Hart’s (11735 Glacier Hwy.) – 31 Car Dependent
- Average: 61

**DISCUSSION**

If the CBJ adopts regulatory changes that promote development at TONs, we will first have to decide whether the nodes should be located at existing service points, at planned service points, or at points that are individually selected based on existing and planned development and transit service; this decision will have major ramifications on where development occurs in Juneau, and will influence where transit services are in the most demand in the future. That is, focusing development on existing service points may hamper, or even preclude, subsequent adjustments in service designed to implement adopted plans. On the other hand, focusing development resources on areas that are not currently transfer points or express stops will likely result in the need to change service routes, potentially at the expense of existing service – and the neighborhoods that are served currently.

Planning Commission

File No's: AME2012 0002 & AME2012 0006

Subject: Transit Oriented Nodes

March 8, 2012

Page 6 of 9

The average WalkScore of the sites under the existing service model of TON selection is slightly higher than the average WalkScore of the sites under the potential service model. The current, high levels of service at the existing service sites supports the existing mixture of uses in a relatively walkable environment – this is a reciprocal, even symbiotic relationship where transit service supports a mixture of uses in a walkable environment, and the mixture of uses in a walkable environment support the transit service. With slightly lower average WalkScores, the potential service model TONs have a smaller number or variety of uses in a slightly less-walkable environment. Improving transit service at these points would support redevelopment of adjacent areas with a more intense mixture of uses; improvements to pedestrian infrastructure would be required in some locations in order to accommodate increased numbers of pedestrians.

Under either alternative model of node selection, important locations are missed. In particular, the existing service basis for node selection does not include the Mendenhall Mall, an important piece of property that has been designated as a Mixed Use area in the Comprehensive Plan since at least 1995. Under the Optimum Scenario basis for node selection, the Nugget Mall and Airport area would not qualify as a TON, and some substantial redevelopment opportunities would be lost. The eastern portion of Lemon Creek does not have a TON in either model, and the large areas of undeveloped and under-utilized land in this corridor would have no new development incentives. And finally, both models fail to place a node anywhere on Douglas Island; although it is not served by an express route, and with only one route it has no opportunity for transfers, downtown Douglas is a relatively densely developed, mixed-use neighborhood that is worthy of being treated as an important transit destination.

One possible work-around to avoid missing important areas that should be targeted for increased levels of residential and mixed-use development is to adopt small Transit Oriented Corridor (TOC) segments  $\frac{1}{4}$  mile from specific bus routes, such as along Glacier Highway and other routes between the Nugget and Mendenhall Malls, and from Wal-Mart east along Glacier Highway to the Vanderbilt Hill Road intersection. Additionally, a small neighborhood-scale TON, with a  $\frac{1}{4}$  mile radius instead of a  $\frac{1}{2}$  mile radius, could be created in downtown Douglas at the Douglas Community Building (Library and Fire Station). This location is within  $\frac{1}{4}$  mile of restaurants, bars, residences, offices, retail, and Perseverance Theatre, and is adjacent to the Douglas harbor and the recreational opportunities at Savikko Park, Sandy Beach, and the Treadwell Arena. Even with all of these existing uses in the area, there are underutilized or undeveloped properties throughout the downtown Douglas area that could be redeveloped to increase residential densities and the mixture of uses in this node. Attachment A shows these potential TOCs and a neighborhood TON in downtown Douglas.

WalkScore of Potential Neighborhood TON:

Douglas Community Building (Fire Station and Library) (1016 3<sup>rd</sup> Street) – 38 Car Dependent

As powerful and convenient of a tool as Walkscore is, it depends on computations based on factors that are beyond the view of the public—we cannot grasp and discuss the metrics that result in the given scores. Creating the metrics to compare potential nodes at the local level

requires more staff time than entering an address at Walkscore.com does, but it has the potential to shed additional light on what strengths or weaknesses exist in the built environment, in relation to a site's walkability.

The CBJ Cartographer, Quinn Tracy, has worked with Planning staff to calculate these metrics for three potential nodes: the Mendenhall Mall, Mallard Street, and Airport nodes. Attachments B and C explain the process of applying the calculations to a given site and what those calculations are, respectively, for those who are interested in delving into the math behind the metrics. The metrics themselves are given on individual map sheets for each potential node, Attachments D through F. The description of the metrics given in this memorandum is vastly simplified so as to be more digestible for most readers.

Each site is shown in the center of the map as a star. A  $\frac{1}{4}$  mile and a  $\frac{1}{2}$  mile radius are shown around each star. Roads (not trails or pedestrian-only routes; more on that later) are shown, and  $\frac{1}{4}$  (darker shading) and  $\frac{1}{2}$  (lighter shading) mile distances from the star are shown along each road.

Roads themselves are categorized into two types of roads: Minor and Major. Major roads are those listed as Minor or Major Arterials in the adopted Zoning Maps; Minor roads are listed as Collectors or local roads in the adopted Zoning Maps. Minor roads, with lower traffic volumes and speeds, are presumed to be more pedestrian-friendly than are major roads. This presumption is not always correct, as in the case of Glacier Highway near the Airport and Mallard St. nodes, where a major street has sidewalks on both sides, and area minor streets lack sidewalks almost universally; however, when you consider the potential for safely and comfortably crossing Glacier Hwy. as opposed to Crest St. or Mallard St., it is clear that major streets generally impeded pedestrian movements across the corridor while minor streets do not. This concept of impeding pedestrian movements is critical to these metrics, so keep it in mind as you review the maps and the following discussion.

Intersections of minor and minor roads are marked with a circle on the node maps; intersections of minor and major, or major and major roads are marked with a square. In general, a high number of intersections in an area relates to a high degree of inter-connectivity, and a variety of routes than can be chosen for any given trip. Thus, the intersection density metric given for each node describes the number of alternative routes available; a higher intersection density equates to a more walkable neighborhood.

Dead-ends are shown on the node maps as triangles. Dead-ends are, from a walkability standpoint, the opposite of intersections—they require pedestrians to back-track, or to use a single route, and limit neighborhood connectivity and therefore walkability. Higher dead-end densities connote less-walkable neighborhoods.

The concept of impedance, or that major streets are barriers to pedestrian travel, is used in the Impedance-Based Intersection Density metric; this measurement describes the number of

intersections with major roads within the given radius from the node. In general, a higher number of impeded intersections in a given area relate to a lower degree of walkability.

The two final metrics listed on the node maps are the most significant for our purposes: Pedestrian Catchment Area and Impeded Pedestrian Catchment Area. These areas were calculated as being the land area within 225 feet of the centerline of any roads within ¼ or ½ mile of each node (Pedestrian Catchment Area), or the land area within 225 of the centerline of any minor roads (essentially treating impeded intersections as dead ends) within ¼ or ½ mile of each node (Impeded Pedestrian Catchment Area). Higher percentages of catchment area, especially higher percentages of impeded catchment area, correlate to higher degrees of walkability.

Key metrics for ¼ mile radii around nodes are reproduced here; please refer to the individual node maps for complete metrics for each site. For comparison, the Walkscore of each potential node is also listed here.

<b>Metric</b>	<b>Airport Node</b>	<b>Mallard St. (Nugget Mall) Node</b>	<b>Mendenhall Mall Node</b>
Impedence-Based Intersection Density (per sq. mi.)	0	20.5	25.6
Pedestrian Catchment Area	29.6%	50.6%	37.3%
Impedence-Based Pedestrian Catchment Area	29.6%	42.8%	17.5%
Walkscore	69	75	78

As these metrics show, these three potential node sites offer varying degrees of walkability, and the walkability metrics calculated by CBJ staff do not agree with the Walkscore for the sites in terms of the ranking of walkability. The Mallard St./Nugget Mall site has the largest Pedestrian Catchment Area and the largest Impedence-Based Pedestrian Catchment Area, but scores the middle Walkscore. The Mendenhall Mall site has the highest Walkscore, but the lowest Impedence-Based Pedestrian Catchment Area.

With the numbers in hand, we must ask, "How do these metrics relate to the question of which model to use for selecting Transit Oriented Nodes?" The answer is that nodes with better scores for the CBJ-calculated metrics have the infrastructure in place, at least in terms of road connectivity, to support walkable, mixed-use development; that is, the Mallard St./Nugget Mall site is, of the three, best suited to accommodate redevelopment with higher residential densities and more intense non-residential uses such as offices and retail.



Planning Commission  
File No's: AME2012 0002 & AME2012 0006  
Subject: Transit Oriented Nodes  
March 8, 2012  
Page 9 of 9

With investment in infrastructure, namely new road dedication and construction, sites that have lower walkability metrics may be made to be more walkable, and they already host a variety of land uses that will support a transition to a walkable neighborhood. The investment required to improve the road network's connectivity will, however, require much more investment of resources to complete.

### **STAFF RECOMMENDATION**

Staff recommends and requests that the Planning Commission provide direction on the question of whether Transit Oriented Corridors, Transit Oriented Nodes, or a combination thereof are more appropriate development models for Juneau.

Furthermore, staff requests that the Planning Commission provide direction on how potential nodes should be selected, if the Transit Oriented Node model is recommended; that is, does the Commission favor utilizing a node choice model that is based on existing transit service or one that is based on planned or potential transit service? Staff recommends a hybridized approach that connects select TON sites with ¼ mile radius Transit Oriented Corridors, as well as placing a ¼ mile radius TON at the Douglas Community Building.