

CAPITAL FACILITIES PLAN

**NORTH WHATCOM
FIRE AND RESCUE**

August 15, 2009

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Introduction

This document is the Capital Facilities Plan of North Whatcom Fire and Rescue. It contains all the elements required by Washington law for capital facilities plans that comply with Washington's Growth Management Act.

Capital Facilities Plan Purpose

Capital facilities are the facilities needed to support growth. They include roads, sewers, parks and open space, and facilities for drinking water, stormwater, garbage disposal and recycling, and all the government buildings which house public services, including schools, law enforcement and fire protection. Regarding fire protection, capital facilities also includes the major apparatus needed to provide this service, such as fire engines and aid vehicles.

North Whatcom Fire and Rescue's Capital Facilities Plan is developed in conjunction with Whatcom County's "Whatcom 2031" 20 year plan which is an update of the County's comprehensive plan to be consistent with the requirements of the Growth Management Act.

The purpose of the CFP for North Whatcom Fire and Rescue is to use sound fiscal policies to provide adequate public facilities consistent with the land use element of the County's comprehensive plan and concurrent with, or prior to, the impacts of development in order to achieve and maintain the district's adopted standards for level of service.

Growth Management Act

The Capital Facilities Plan (CFP) is required by the State Growth Management Act (GMA). The GMA requires the CFP to identify specific facilities, include a realistic financing plan, and make adjustment to the plan if funding is inadequate. The North Whatcom Fire and Rescue CFP will be incorporated into the Whatcom County CFP.

The GMA requirements for the CFP are set forth in RCW 36.70A.070(3), "Each comprehensive plan shall include a plan, scheme, or design for each of the following:

"A capital facilities plan element consisting of: (a) An inventory of existing capital facilities owned by public entities, showing the locations and capacities of the capital facilities; (b) a forecast of the future needs for such capital facilities; (c) the proposed locations and capacities of expanded or new capital facilities; (d) at least a six-year plan that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and (e) a requirement to reassess the land use element if probable funding falls short of meeting existing needs

and to ensure that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent.”

Recent Western Washington Growth Management Hearings Board cases indicate a Comprehensive Plan should have a 20-year plan for capital facilities, though only 6 years need to be fully financed.

Organization of the CFP

As required by RCW 36.70A.070 (3), North Whatcom Fire and Rescue’s capital facilities plan contains the following:

- A. Fire Protection Services and Inventory:** this section provides a narrative description of the fire district operations and the current inventory of stations and apparatus.
- B. Forecast of Future Needs:** this section identifies the level of service standards and analyzes the need for capital improvements to achieve levels of service
- C. Capital Projects:** this section lists the capital improvements that will eliminate existing deficiencies, make available adequate facilities for future growth, and repair or replace obsolete or worn out facilities.
- D. Financing Plan:** this section lists the funding sources that will pay for needed capital improvements.
- E. Coordination of CFP and Land Use Plan:** this section addresses the requirement that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent.

A. Fire Protection Services and Inventory

Fire Protection Services

Whatcom County Fire District #21, doing business as North Whatcom Fire and Rescue (NWFR), is a rural fire protection district, established under Title 52 of the Revised Code of Washington. The district was created in 2006 through the merger of Whatcom Fire Districts No. 3 and No. 13. The fire district serves a population of 28,246 in 147 square miles of Whatcom County, Washington. The service area includes the City of Blaine, the Birch Bay area and a large portion of rural northern Whatcom County. NWFR also protects three of the busiest ports of entry along the US/Canadian border. These crossings serve all private vehicles and commercial truck traffic connecting Western Canada with the US West Coast. NWFR spans multiple state and interstate highways, major rail lines and regional power substations as well as high-pressure, regional pipelines carrying petroleum and natural gas. NWFR also protects a critical regional airport navigation facility and a Federal Communications Commission communications monitoring facility. In addition by automatic aid, NWFR supports a neighboring jurisdiction to the south in protecting the Cherry Point industrial complex. This area includes two oil refineries, an aluminum manufacturing plant and a co-generation plant as well as chemical and propane storage facilities. The City of Lynden is within the fire district boundaries but operates its own independent fire department, using NWFR for mutual aid.

The fire district operations include fire response, emergency medical services including BLS (basic life support) transport, hazardous materials response at the operations level, some limited rescue, and fire prevention and public education activities. The fire district is classified as a “combination” district incorporating both career (paid) personnel and on-call (volunteer) personal. During 2008 the district consisted of 37 full-paid firefighters, 50 volunteer firefighters and 11 support staff. The district operates out of 10 fire stations.

Inventory of Current Facilities

Exhibit 1 shows the current inventory of career (staffed) and volunteer fire stations for North Whatcom Fire and Rescue, including the location, size and apparatus capacity (number of bays). The department has 10 fire stations for a total of 72,422 square feet of building space.

Exhibit 1: Fire Station Inventory

Station	Location	Square Feet	Number of Bays	Acres	
Career Stations					
61	Blaine Station	9408 Odell Rd., Blaine	9,853	4	1.16
63	Birch Bay Station (HQ)	4581 Birch Bay Lynden Rd., Blaine	10,850	4 dbl deep w/drive thru	2.00
71	Lynden Station	307 19th St., Lynden	9,757	2 w/o drive thru	0.87
Sub Total: Career Stations			30,460		4.03
Volunteer Stations					
62	Semiahmoo Station	9001 Semiahmoo Pkwy, Blaine	8,600	1 (small apparatus)	0.92
64	Custer Station	7625 Custer School Rd., Custer	5,000	4 w/drive thru	0.60
65	Haynie Station	3401 Haynie Rd., Blaine	5,200	3 w/o drive thru	1.85
68	Delta Station	8188 N. Enterprise Rd., Ferndale	5,063	3 w/o drive thru	0.90
69	Laurel Station	6028 Guide Meridian, Bellingham	6,399	4 w/o drive thru	1.47
70	Wiser Lake Station	633 E. Wiser lake Rd., Lynden	5,170	4 w/ drive thru	1.00
72	Northwood Station	1707 R. Badger Rd., Lynden	6,530	5 w/o drive thru	1.65
Sub Total: Volunteer Stations			41,962		8.39
Station Total:			72,422		12.42

Source: North Whatcom Fire and Rescue

The location of the stations is shown in Exhibit 4 which also displays the population density and urban growth area boundaries in the fire district.

Exhibit 2 shows the current (2008) apparatus inventory as it was assigned to each of the ten fire stations. Apparatus are assigned to each of the stations with the exception of Station 64 at which the apparatus have been taken out of service.

Exhibit 2: Inventory of Apparatus

Station		Ambulance	Engine/ Pumper	Tender	Aerial	Brush Truck
Career Stations						
61	Blaine Station	2	2			
63	Birch Bay Station (HQ)	2	1	1	1	1
71	Lynden Station	1	1			
Sub Total: Career Station Apparatus		5	4	1	1	1
Volunteer Stations						
62	Semiahmoo Station	1	1			
64	Custer Station					
65	Haynie Station	1	1	1		
68	Delta Station	1	1	1		1
69	Laurel Station	1	1	1		1
70	Wiser Lake Station	1	1	1		
72	Northwood Station	1	1	1		1
Sub Total: Volunteer Station Apparatus		6	6	5		3
Apparatus Total		11	10	6	1	4

Source: North Whatcom Fire and Rescue

B. Forecast of Future Needs for Capital Improvements

Level of Service Measures

There are many ways that public agencies measure the level of service they provide. Some are quantitative measures of the ratio of public facilities to the population. Examples include 10 acres of parks per 1,000 population, or 300 gallons of water per person per day. Another approach is to measure the extent to which public facilities are used. An example from transportation is the ratio of traffic volume to the capacity of the road. If a road's volume is 8,000 vehicles per day, and that road's capacity is 10,000 vehicles per day, the ratio is 0.80.

In the field of fire and rescue protection, the most meaningful measure of service is the time it takes to provide fire and/or rescue equipment at the scene of an emergency. The National Fire Protection Association (NFPA) has established standards for responses to urban, suburban, rural, and remote areas. There are separate standards for career (full-time paid) fire departments or districts and for combination fire departments and districts (including those with volunteer only staffing).

In December 2007, North Whatcom Fire and Rescue (NWFR) adopted response time performance objectives that are based on NFPA standards, adjusted to local conditions and capabilities. The following are NWFR's performance standards (Response Time Objectives) for all Priority 1 incidents (fire and life threatening medical):

- (Tier 1) Urban – Eight (8) minutes 90% of the time for arrival of the first due fire engine company
- (Tier 2) Suburban – Ten (10) minutes 90% of the time for arrival of the first due fire engine company
- (Tier 3) Rural – Twelve (12) minutes 90% of the time for arrival of the first due fire engine company
- (Tier 4) Remote – Fourteen (14) minutes 90% of the time for arrival of the first due fire engine company

These response time objectives provide benchmark's for NWFR's ability to save lives and property. The benchmarks are indicators of the outcome of NWFR's service, but they do not directly indicate the quantity of service (i.e., the number of fire stations or apparatus (i.e., fire engines, aid vehicles, etc.).

NWFR's Capital Facilities Plan (CFP) analyzes the need for fire stations and apparatus, including capital improvements needed to achieve NWFR's level of service standards (e.g., the response time objectives). NWFR's level of service performance standards for response times do not directly measure the number of fire stations and apparatus, therefore the analysis of needs in this CFP uses several indicators of need to establish the relationship between the performance objectives and the quantity of fire stations and apparatus. The final determination of need is not the result of a formula, but is the result of the interpretation of the multiple indicators of need by fire service professionals and the NWFR Commissioners.

The analysis of need is focused on stations with full-paid firefighters because those stations are the first responder to most calls (96.5% of calls in 2008), thus they are the primary factor in determining response time and other measures of service.

Indicators of Need

There are many variables that should be considered when determining the need for fire stations and apparatus to achieve NWFR's level of service standards. These variables include:

- type of incident: fire or rescue (emergency medical service)
- magnitude of incident: major or lesser
- type of property: high hazard or lower hazard
- communication time from receipt of emergency call to dispatch of responder
- availability of the nearest responder: nearest unit available or nearest unit is on another call so the response is by the next nearest unit (which is farther away)
- turn out time from notification of emergency to departure to the scene
- distance from station to the scene of the emergency
- transportation network location, condition, and interruptions between the station and the scene of the emergency
- travel time from station to the scene of the emergency (directly affected by distance and transportation network plus other variables)
- responding unit(s): career and/or volunteer

There are several quantitative measures that indicate the need for fire stations and apparatus. The indicators of need used by NWFR in the following analysis include:

1. population growth
2. urban density growth
3. household growth
4. employment growth
5. emergency call (workload) growth
6. existing deficiencies of response times
7. response time trends
8. fire station coverage (areas reachable within time standards)
9. stations and apparatus needed to maintain recent ratios to existing development

Each of these indicators of need is presented below.

1. Population Growth

Exhibit 3 shows Whatcom County's growth projections for population for North Whatcom Fire and Rescue through the year 2031.

Growth forecasts are shown for 4 planning alternatives. These planning alternatives represent the alternatives included in the May 2009 WHATCOM2031

Environmental Impact Statement. Briefly, the planning alternatives are as follows:

No Action – Current Comp Plan: this alternative assumes growth similar to the Whatcom County adopted comprehensive plan.

No Action – Trends Alternative: this alternative assumes that future growth will match the County's historic pattern of urban and rural growth.

Action Alternative X: this alternative is based on shifting future growth away from the rural areas and resource lands and into the urban growth areas (UGAs). The emphasis is on infill development in the existing UGAs and continuing the focus on Bellingham as the primary population and employment center in the County. This alternative assumes that the planned densities will be achieved through a focus on infill development.

Action Alternative Y: this alternative also shifts future growth away from rural areas and resource lands but not as intensely as Alternative X. This alternative also shifts growth away from Bellingham and into other small urban areas. This alternative assumes that densities will be similar to recent patterns.

North Whatcom Fire and Rescue population growth for the year 2031 for each of the four planning alternatives is shown in Exhibit 3. The rate of growth ranges from a low of 31.88% in the No Action – Current Comp Plan alternative to a high of 61.94% for Alternative Y where the shift in growth is focused on small urban areas including the UGA portions of North Whatcom Fire and Rescue.

Exhibit 3. Population Growth: 2008 - 2031

	No Action - Current Comp Plan	No Action - Trends	Alternative X	Alternative Y
2008	28,246	28,246	28,246	28,246
2031	37,252	39,193	40,669	45,742
Growth	9,006	10,947	12,423	17,496
% Increase	31.88%	38.76%	43.98%	61.94%

Source: Whatcom County Draft Environmental Impact Statement, Appendix D

The growth in population is likely to create a comparable increase of 31.88% to 61.94% in emergency calls to North Whatcom Fire and Rescue.

2. Urban Density growth

Exhibits 4 and 5 show the location of urban, suburban and rural development in North Whatcom Fire and Rescue. The definition of urban, suburban and rural is from the National Fire Protection Association’s thresholds of greater than 1,000 persons per square mile for urban, 500 – 1,000 persons per square mile for suburban, and less than 500 persons per square mile for rural. These thresholds correspond to the urban/suburban/rural response time objectives in NWFR’s performance standards listed above. Based on the definition of “Remote” under NFPA 1720 Standards, NWFR does not have any “Remote” area.

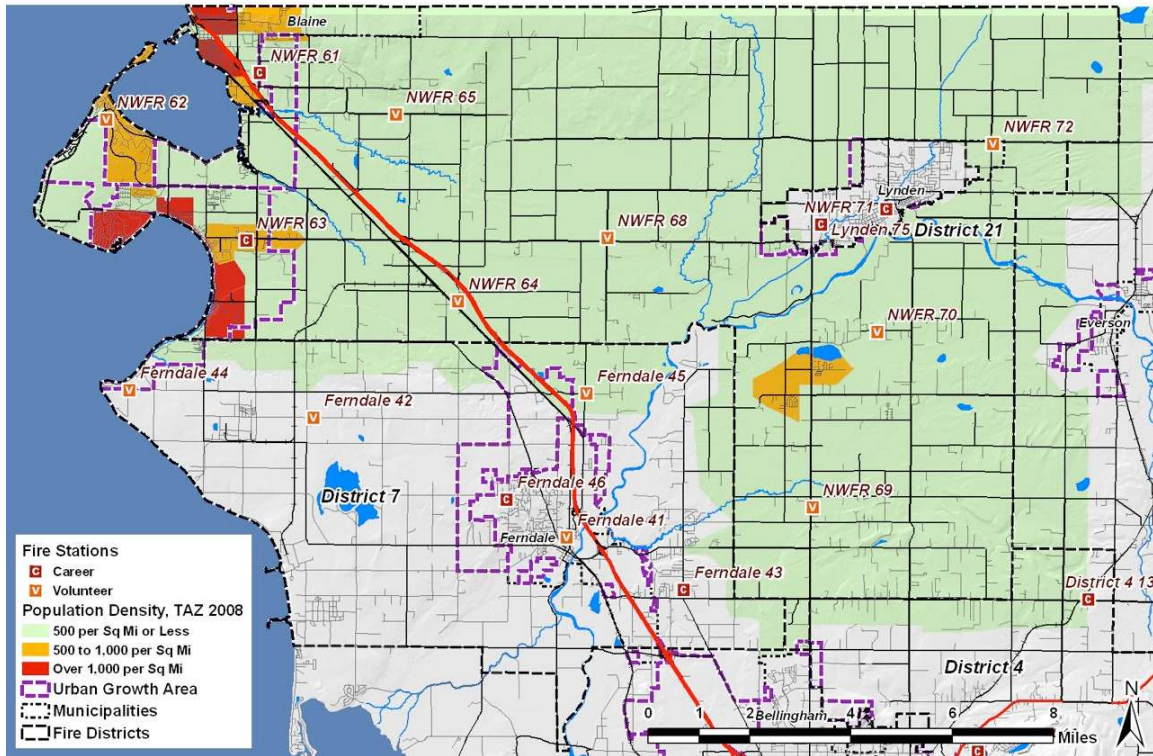
Exhibit 4 shows the current population densities in 2008, and Exhibit 5 shows the population densities in 2031 for Alternative Y of the County’s growth alternatives. The Exhibits show significant increases in population density in the northwest portion of the District in and around Blaine and Birch Bay, and also in the eastern portion of the District near Lynden and south near Ferndale.

Exhibits 4 and 5 also show the boundaries of Whatcom County’s Urban Growth Areas. There is a strong correlation between the urban and suburban areas identified by NFPA’s criteria and the UGAs defined by Whatcom County. To the extent that there are a few differences they can be attributed to (1) the boundaries of Traffic Analysis Zones that were used by the County to allocate population, and (2) the County’s UGA boundaries are based on a number of variables, but not directly based on the NFPA standards.

The purpose of Exhibit's 4 and 5 is to demonstrate the similarities between NWFR and Whatcom County identification of urban areas and therefore urban services.

Exhibit 4. North Whatcom Fire and Rescue: 2008 Population Density

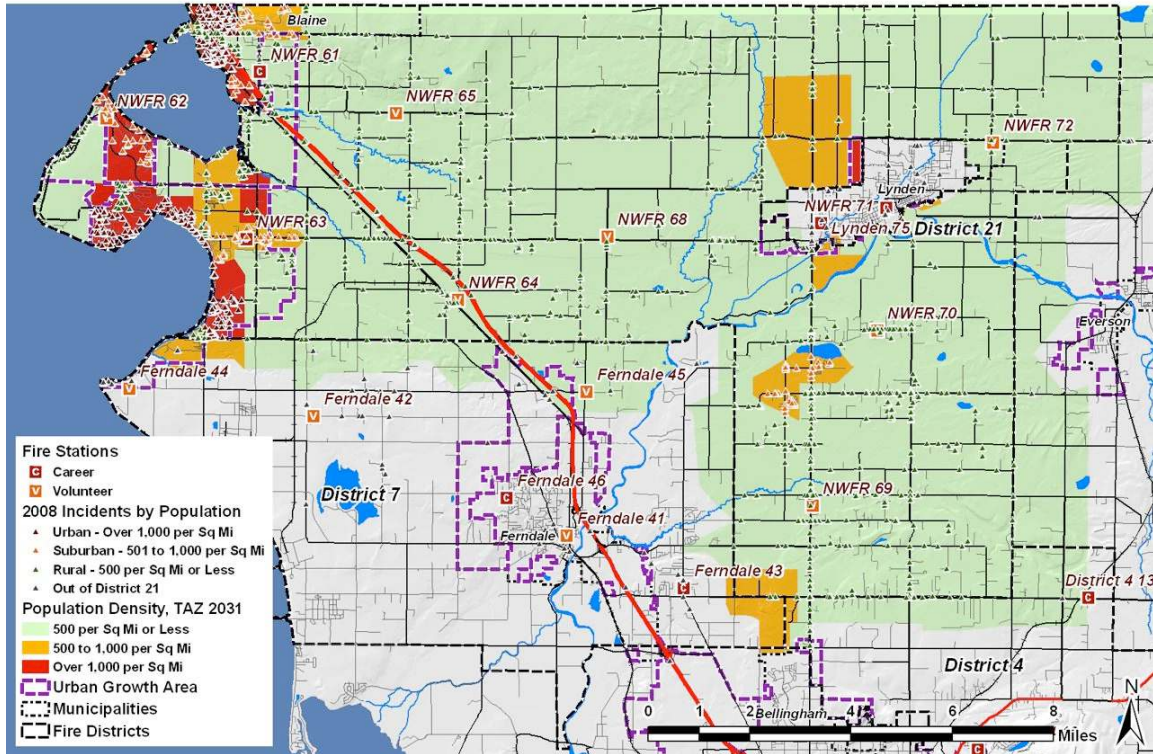
**Whatcom County Fire District 21
Population Density - TAZ 2005 Blocks, with 2008 Population
2008 Incidents Coded by TAZ 2005/2008 Status**



Source: Entrada/San Juan, Inc.

Exhibit 5. North Whatcom Fire and Rescue: 2031 Population Density

Whatcom County Fire District 21
Population Density - TAZ 2005 Blocks, with 2031 Population
2008 Incidents Coded by TAZ 2005/2008 Status



Source: Entrada/San Juan, Inc.

The growth in population density in the northwest and east-central areas of NWFR is likely to create a comparable increase in the location of emergency calls to North Whatcom Fire and Rescue.

Whatcom County's population forecast for 2031 for Alternative Y includes some suburban densities north and south of Lynden, and northeast and southeast of Ferndale. NWFR notes that the Lynden areas and the area northeast of Ferndale are within NWFR's urban response time coverage (see Exhibit 14). The suburban growth southeast of Ferndale is partly in NWFR's suburban response time coverage, and partly in NWFR's rural response time coverage. However, mutual aid from Ferndale Station 43 provides urban response times to the area.

3. Household Growth

North Whatcom Fire and Rescue household growth for the year 2031 for each of the four planning alternatives is shown in Exhibit 6. The rate of growth ranges from a low of 34.4% in the No Action – Current Comp Plan alternative to a high of 63.85% for Alternative Y which tracks the population growth in Exhibit 3.

Exhibit 6. Household Growth: 2008 – 2031

	No Action - Current Comp Plan	No Action - Trends	Alternative X	Alternative Y
2008	11,284	11,284	11,284	11,284
2031	15,166	15,682	16,535	18,489
Growth	3,882	4,398	5,251	7,205
% Increase	34.40%	38.98%	46.53%	63.85%

Source: Whatcom County Draft Environmental impact Statement, Appendix D

The growth in households is likely to create a comparable increase of 34.30% to 63.85% in emergency calls to North Whatcom Fire and Rescue.

4. Employment Growth

North Whatcom Fire and Rescue employment growth for the year 2031 for each of the four planning alternatives is shown in Exhibit 7. The rate of growth ranges from a low of 35.58% in the No Action – Current Comp Plan alternative to a high of 75.95% for Alternative Y as the growth focus is away from Bellingham to the smaller urban areas.

Exhibit 7. Employment Growth: 2008 – 2031

	No Action - Current Comp Plan	No Action - Trends	Alternative X	Alternative Y
2008	11,629	11,629	11,629	11,629
2031	15,767	18,946	17,303	20,461
Growth	4,138	7,317	5,674	8,832
% Increase	35.58%	62.92%	48.79%	75.95%

Source: Whatcom County Draft Environmental impact Statement, Appendix D

The growth in employment is likely to create a comparable increase of 35.58% to 75.95% in emergency calls to North Whatcom Fire and Rescue.

For all three needs indicators (1) population, (2) households, and (3) employment, planning Alternative Y results in approximately twice the rate of growth in the fire district compared to growth patterns allowed in the current Whatcom County Comprehensive Plan (i.e., No Action-Current Comp Plan alternative).

5. Emergency Call (Workload) Growth

North Whatcom Fire and Rescue has been experiencing an increase in workload as demonstrated in Exhibit 8. The 2007 and 2008 emergency fire and rescue calls (priority one incidents) are shown for each of the 10 stations. The percent of change from 2007 to 2008 is shown in the last column. In many cases the workload has either significantly increased or decreased from 2007 to 2008 due to operational changes and assignments to stations during this time frame. However, overall the workload increased by 2.6% in 2008.

Exhibit 8. Emergency Call (Workload) Trends: Station By Station Analysis

Station	2007 Priority One Responses	2008 Priority One Responses	2007-2008 % Increase
61	553	552	-0.2%
62	39	2	-94.9%
63	462	680	47.2%
64	101	5	-95.0%
65	37	5	-86.5%
68	111	7	-93.7%
69	173	17	-90.2%
70	103	5	-95.1%
71	228	605	165.4%
72	37	3	-91.9%
Other Stations	10	22	120.0%
Total	1,854	1,903	2.6%

Note: the "Other" Stations in Exhibit 8 are responses from out of district that dispatch assigned to North Whatcom Fire and Rescue.

Source: Entrada/San Juan, Inc.

Exhibit 9 shows the potential growth in workload by the year 2031 for the urban, suburban and rural areas of the fire district. The forecast of priority one responses for 2031 assumes that the district's workload will increase consistent with the growth in population from 2008 to 2031. The workload forecasts range from a low of 28.49% in the rural areas to a high of 173.1% in the suburban areas of the district.

Exhibit 9. Emergency Call (Workload) Growth: Plan Alternative Y

	2008 Priority One Responses	2008 Population	2031 Population (Alternate Y)	2031 Priority One Responses	% Increase
Urban	591	7,791	14,465	1,157	95.77%
Suburban	316	3,204	9,512	863	173.10%
Rural	923	16,437	21,496	1,186	28.49%
Total	1,830	27,432	45,473	3,206	75.19%

Source: Whatcom County Draft Environmental impact Statement, Appendix D and Enstrada/San Juan, Inc.

The growth in workload is likely to create a comparable increase need for fire stations and apparatus.

6. Existing Deficiencies of Response Times

Exhibit 10 demonstrates on a districtwide basis, the fire district is most deficient in the urban areas and is very close to meeting it's standard in the rural areas of the service area. The urban area standard is 8 minutes 90% of the time. The actual response time in the urban area in 2008 averaged 11.067 minutes 90% of the time. The district achieved 8 minute response time for 65% of the calls. The deficiency between the 8 minute standard and the 11.067 minute performance is 3.067 (which is 38% deficient compared to the 8 minute standard (i.e., $3.067 \div 8.000 = 38\%$). Lesser deficiencies occurred in 2008 for suburban and rural areas.

Exhibit 10. Response Time: Districtwide 2008 Performance vs. Standard

	Standard (Minutes)	Standard (Percentile)	Minutes @ 90 th Percentile	Percent @ standard	Minutes Deficient	Percent Deficient (minutes deficient ÷ std min)
Urban	8	90%	11.067	65%	3.067	38%
Suburban	10	90%	12.500	75%	2.500	25%
Rural	12	90%	13.233	83%	1.233	10%

Source: Enstrada/San Juan, Inc.

Although the district experienced deficiencies in response time performance, the trends of response time are improving, as shown in the next section.

7. Response Time Trends

Exhibits 11 - 13 compare response times to emergency (priority one) fire and rescue calls for the years 2007 and 2008 and how the actual response times compare to the adopted standards. The response time applies to the first engine or ambulance to arrive on the scene of the fire or EMS incident.

Exhibit 11 shows the fire district’s actual performance for the past two years within the urban areas of its service area. The level of service standard for urban areas is an 8 minute or less response time for 90% of the priority one fire and EMS incidents. Exhibit 8 indicates the fire district’s performance has improved from 2007 to 2008. The response time at the 90th percentile improved from 12.967 minutes to 11.067 minutes. The percent of responses that took 8 minutes or less increased from 55% to 65% of all priority one emergency calls to the urban areas.

Exhibit 11. Response Time Trends: Districtwide Urban Performance

	Standard (Minutes)	Standard (Percentile)	Minutes @ 90th Percentile	Percent @ standard
2007	8	90%	12.967	55%
2008	8	90%	11.067	65%

Source: Entrada/San Juan, Inc.

Exhibit 12 shows the fire district’s actual performance for the past two years within the suburban areas of its service area. The level of service standard for suburban areas is a 10 minute or less response time for 90% of the priority one fire and EMS incidents. Exhibit 11 indicates the fire district’s performance has improved from 2007 to 2008. The response time at the 90th percentile improved from 13.550 minutes to 12.500 minutes. The percent of responses that took 10 minutes or less increased from 70% to 75% of all priority one emergency calls to the suburban areas.

Exhibit 12. Response Time Trends: Districtwide Suburban Performance

	Standard (Minutes)	Standard (Percentile)	Minutes @ 90th Percentile	Percent @ 10 minutes
2007	10	90%	13.550	70%
2008	10	90%	12.500	75%

Source: Entrada/San Juan, Inc.

And finally, Exhibit 13 shows the fire district’s actual performance for the past two years within the rural areas of its service area. The level of service standard for rural areas is a 12 minute or less response time for 90% of the priority one fire and EMS incidents. Exhibit 12 indicates the fire district’s performance has improved from 2007 to 2008. The response time at the 90th percentile improved from 13.733 minutes to 13.233 minutes. The percent of responses that took 12 minutes or less increased from 80% to 83% of all priority one emergency calls to the rural areas.

Exhibit 13. Response Time Trends: Districtwide Rural Performance

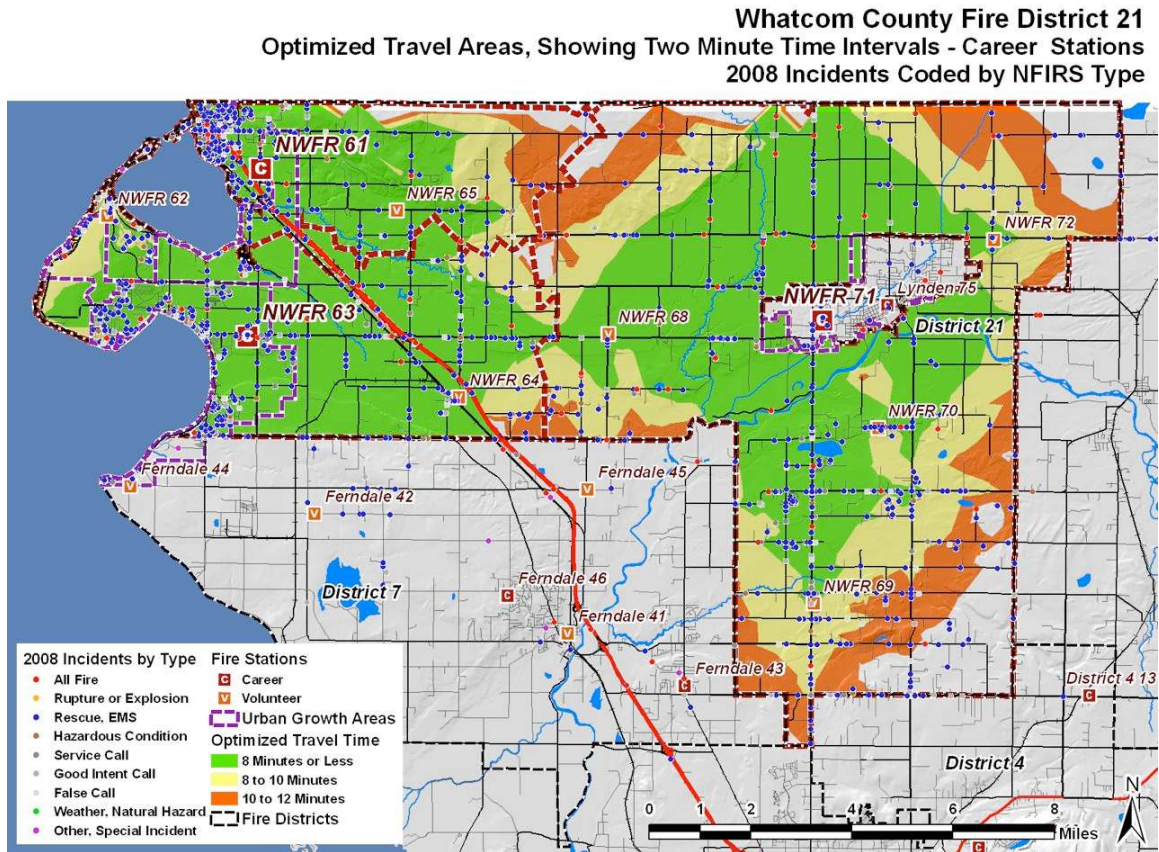
	Standard (Minutes)	Standard (Percentile)	Minutes @ 90th Percentile	Percent @ 12 minutes
2007	12	90%	13.733	80%
2008	12	90%	13.233	83%

Source: Entrada/San Juan, Inc.

8. Fire Station Coverage (areas reachable within time standards)

Exhibit 14 shows that the Urban Growth Area is within the coverage areas corresponding to the response time objectives for the three stations with full paid firefighters.

Exhibit 14. Urban/Suburban (8/10 Minute) Career Stations Coverage In UGA



Source: Entrada/San Juan Inc.

9. Stations and Apparatus Needed to Maintain Recent Ratios to Existing Development

Other indicators of the need for fire stations and apparatus to serve growth are the ratios of fire stations and apparatus to the workload of those stations and apparatus (and thus indirectly to the response times achieved by those stations and apparatus). The response times achieved in 2008 are presented above. The ratios of 2008 incidents to various units of land use is shown below in the column “Fire Incidents per Unit.” Exhibit 15 also includes the growth in dwelling units and non-residential properties¹, and multiplies the growth times the ratios of emergency calls per unit of development. The result is the forecast number of fire incidents and EMS incidents in the year 2031. The last 3 columns multiply the projected number of incidents times the capacity of stations and apparatus per incident in order to forecast the number of square feet of fire stations and the number of fire engines and aid vehicles that would be needed to serve growth.

¹ The growth in non-residential properties was estimated by multiplying the County’s forecast of employment growth times established guidelines for square feet per employee from the *Planner’s Estimating Guide*.

Type of Use	Employee Growth	Sq. Ft. per Employee	Building Growth Sq Ft
Retail	1,166	670	781,220
Commercial	2,305	350	806,750
Industrial	5,361	500	2,680,500

Exhibit 15 indicates a need for 16,654 square feet of additional fire stations, almost 2 fire engines and more than 2 aid vehicles to serve growth by the year 2031.

Exhibit 15. 2031 Forecast of Stations and Apparatus to Maintain 2008 Actual Service Level

FIRE							
Land Use	Growth 2008-2031	Units of Growth	Fire Incidents per Unit	Fire Incidents	Fire Station @ Sq Ft per Fire Incident	Engine @ # of Incidents per Apparatus	Aid @ # of Incidents per Apparatus
Single Family	5,901	dwelling	0.01946	114.8	14.02	300	328
Multi Family	1,304	dwelling	0.03333	43.5	1,610	0.38	0.35
Retail	781,220	sq. ft.	0.00005	39.1	609	0.14	0.13
Commercial	806,750	sq. ft.	0.000147	118.6	548	0.13	0.12
Industrial	2,680,500	sq. ft.	0.00002	61.4	1,663	0.40	0.36
Total Units Needed				377.3	861	0.20	0.19
Response per unit					5,290	0.66	0.60
Net Units Needed						55.98%	28.08%
						0.37	0.17
EMS							
Land Use	Growth 2008-2031	Units of Growth	EMS Incidents per Unit	EMS Incidents	Fire Station @ Sq Ft per Fire Incident	Engine @ # of Incidents per Apparatus	Aid @ # of Incidents per Apparatus
Single Family	5,901	dwelling	0.08712	514.1	14.02	300	328
Multi Family	1,304	dwelling	0.11824	154.2	7,208	1.71	1.57
Retail	781,220	sq. ft.	0.00009	70.3	2,162	0.51	0.47
Commercial	806,750	sq. ft.	0.00003	22.3	986	0.23	0.21
Industrial	2,680,500	sq. ft.	0.00002	49.6	313	0.07	0.33
Total Units Needed				810.5	695	0.17	0.15
Response per unit					11,364	2.70	2.74
Net Units Needed						55.36%	76.55%
						1.50	2.09
Total Fire + EMS				1,187.8	16,654	1.86	2.26

Source: Henderson, Young & Company using data from the Whatcom County Draft Environmental Impact Statement; 'Planners Estimating Guide' by Arther C. Nelson, Planners Press, 2004; and North Whatcom Fire and Rescue Draft Concurrency Mitigation Fee Program, December 31, 2008

10. Non-Capital Strategies for Improving Response Time Performance

Response time performance can be improved by adding fire stations, engines and aid vehicles, but some improvements in response time can be obtained using non-capital strategies. NWFR is pursuing several non-capital strategies, including:

1. NWFR has entered into an automatic first response agreement with Whatcom County Fire District 7 located directly south of NWFR. This agreement enables both fire districts to improve response times in areas of marginal coverage, and provides additional staffing to both agencies during critical Priority 1 incidents.
2. NWFR is also working with the City of Lynden Fire Department on a similar agreement, where the fire district assists the city during “high workload” situations. Conversely, the City of Lynden Fire Department will provide assistance to NWFR as needed.
3. NWFR has implemented a firefighter “Intern Program” partnering with Skagit Community College to place intern firefighters in one station and assigning them a supervisor. These students now respond as part of the overall response plan thus improving staffing and response times without any significant increases in operational costs.
4. NWFR will be implementing a “three-tiered” employee/member program where some members will serve in a capacity as part paid firefighters. This part paid program will augment full paid personnel at a significant cost savings.
5. NWFR has implemented a Geo-Spatial Information System (GIS), a mapping system that assists with resource allocation planning and implementation throughout the fire district. The program examines operational statistics and provides operational information that enables the fire district to more strategically plan for fire station locations, staffing compliments based on work load, and improved response times.
6. NWFR has implemented a sophisticated financial management program that includes a financial forecasting model. The fire district has a six year financial plan. Such financial planning provides accurate revenue and expenditure projections enabling the fire district to plan for additional staffing and other operational needs.

7. NWFR monitors proposed road system projects and collaborates with the County and cities to ensure that road projects maintain or improve response times.
8. NWFR continues to develop strategies to improve response times:
 - a. Reaction times need to be ninety-seconds or less. Working towards that goal, the fire district has completed an analysis of each fire station looking at improving the ergonomics and how improvements to apparatus location, sleeping quarters and fire station work flows can make it easier for the firefighter to be out of the station within the ninety-second time frame.
 - b. Mobile data computers have been installed in all first out apparatus and all command units which provide important incident information and resource availability, thus reducing the duplication of apparatus assignment enabling better resource management.
 - c. The implementation of an automated “call back” system enables NWFR to request “off duty” personnel to return to work when large incidents or significant incident numbers warrant additional staffing.

11. Analysis of Indicators of Need and Conclusions Regarding Needed Capital Improvements

Exhibit 10 indicates that North Whatcom Fire and Rescue did not achieve its response time performance standards in 2008, but Exhibits 11, 12, and 13 indicate significant improvements from 2007 to 2008 without the addition of stations or apparatus even though emergency calls increased 2.5% during the same time period. The district is pursuing several strategies that are likely to improve its performance levels to achieve its standards for existing development without additional fire stations or apparatus. The success of those strategies should eliminate any existing deficiencies. However, the strategies will not be sufficient to sustain performance levels for growth, thus an analysis of growth is the basis for determining needed capital improvements for growth.

Exhibit 16 uses the growth percentages of population, households, employment and workload (from Exhibits 1, 4, 5, and 6) to forecast the need for additional fire station square footage and additional engines and aid vehicles. The last row of data shows the needs to provide the 2008 level of service for future growth.

The data indicates that North Whatcom Fire and Rescue needs additional fire station space, engines and aid vehicles to serve growth between 2008 and 2031. Generalizing from the data, it appears that the district needs approximately 20,000 square feet (the equivalent of 2 fire stations), plus 2 engines and 2 aid vehicles (one of each at each new station).

Exhibit 16. Analysis of Indicators of Need

Indicator of Need	Growth 2008 - 2031	Additional Station square feet (full paid)	Additional Engines (full paid)	Additional Aid Vehicles (full paid)
Current Inventory		30,460	4.0	4.0
2009 inventory (above) x growth % (left) = amount needed				
Population growth	61.94%	18,867	2.5	2.5
Household growth	63.85%	19,449	2.6	2.6
Employment growth	75.95%	23,134	3.0	3.0
Workload growth	65.76%	20,030	2.6	2.6
Maintain 2008 LOS	units, not %	16,654	1.9	2.3

Source: Henderson, Young & Company (from Exhibits 3, 6, 7, 9, and 15)

The population density maps for 2008 and 2031 in Exhibits 4 and 5 show the largest portion of the growth occurring in the northwest portion of the District in and around Blaine and Birch Bay. Exhibits 4 and 5 also show growth at suburban densities in the eastern portion of the District near Lynden and south near Ferndale.

The northwest area is the priority area for a new station, engine and aid vehicle. A second station (or expansion of an existing station) could also serve the northwest area, or it could be located to serve the northwest and Lynden. The suburban growth near Ferndale can be served by mutual aid from Ferndale Station 43.

C. Capital Projects

Capital Improvements Needed for Levels of Service

The analysis in the forecast of needs (above) indicates that North Whatcom Fire and Rescue needs approximately 20,000 square feet (the equivalent of 2 fire stations), plus 2 engines and 2 aid vehicles (one of each at each new station) to serve growth between 2008 and 2031.

Exhibit 17 itemizes the cost of a new fire station with one engine and one aid vehicle. All costs are presented in 2007 dollars, no inflation is included.

Exhibit 17. Cost of New Fire Station with Engine and Aid Vehicle

Land and Construction Costs

Land (2 acres).	\$ 175,000
New Construction @ \$275 sq. ft.	2,574,000
Site Development @ \$6 sq. ft.	653,400

Subtotal Land and Construction Cost **3,402,400**

Project Soft Costs

Furnishings and Equipment @ 7%	225,918
WSST @ 8.4%	271,102
A/E Fees @ 10%	322,740
Construction Management @ 6%	193,644
Specialty Consultants @ 5%	161,370
Permits/Fees/Inspections @ 2%	64,548
Printing/Reimbursables @ 1%	32,274
Contingency @ 15%	484,110

Subtotal Soft Costs **1,755,706**

Apparatus

Engine	425,000
Aid Vehicle	140,000

Subtotal Apparatus Cost **565,000**

Total Project Cost (2007 Dollars) **\$5,723,106**

Source: Construction cost and apparatus from North Whatcom Fire and Rescue "Facilities and Capital Needs Assessment", ESCi, March, 2008; Land cost from local real estate estimates.

Exhibit 18 lists the cost of the two new fire stations (each with one engine and one aid vehicle) needed to serve growth as presented in the Forecast of Future Needs section of this CFP.

Exhibit 18. Capital Improvement Projects to Serve Growth

Project	Cost
New station A with engine and aid vehicle	\$5,723,106
New station B with engine and aid vehicle	5,723,106
Total Cost	\$11,446,212

Source: Henderson, Young & Company (from Exhibit 17)

The location of the new stations will be in urban growth areas. As noted in the forecast of needs, above, the northwest area of the district is the priority area for the first new station, engine and aid vehicle. A second station (or expansion of an existing station) could also serve the northwest area, or it could be located to serve the northwest and Lynden. Specific locations will be determined by the district after determining the availability of appropriately located parcels.

Capital Improvements Needed for Asset Preservation

In March 2008, North Whatcom Fire and Rescue received “Facilities and Capital Needs Assessment” that included a detailed analysis of the existing condition of the district’s 10 fire stations, recommended improvement projects that would restore and preserve those assets, and estimates of costs for the capital projects. Exhibit 19 includes all of those projects, and four additional projects that have been identified by district command staff (Station 62 seismic upgrade, Station 63 exhaust system, Station 69 site paving overlay, and Station 71 exhaust system).

Exhibit 19. Capital Improvement Projects to Preserve Assets

Station	Project	Cost (per architect)	Soft Costs @ 25% (per ESCi)	Total Cost
61	no project			
62	seismic upgrade	\$301,000	\$75,250	\$376,250
63	seismic upgrade	272,020	68,005	340,025
63	exhaust system	112,000	28,000	140,000
64	exterior skin replacement	94,000	23,500	117,500
64	reroof	70,000	17,500	87,500
64	seismic upgrade	175,000	43,750	218,750
65	seismic upgrade	182,000	45,500	227,500
65	exterior skin replacement	97,500	24,375	121,875
68	seismic upgrade	179,095	44,774	223,869
68	site paving overlay	78,000	19,500	97,500
69	seismic upgrade	223,965	55,991	279,956
69	site paving overlay	101,000	25,250	126,250
70	seismic upgrade	180,950	45,238	226,188
71	seismic upgrade	341,495	85,374	426,869
71	exhaust system	56,000	14,000	70,000
72	seismic upgrade	228,550	57,138	285,688
		2,692,575	673,144	3,365,719

Source: North Whatcom Fire and Rescue "Facilities and Capital Needs Assessment", ESCi, March, 2008 and District Command Staff

The location of these asset preservation projects is at the fire stations indicated in Exhibit 19. The specific station locations are included in Exhibit 1. A map of the location of all stations is in Exhibit 4.

D. Financing Plan

Capital Projects Funding

North Whatcom Fire and Rescue's annual budget is used primarily for operating and maintenance costs, and for debt service payments. The budget does not include enough revenue to fund the capital projects identified in this Capital Facilities Plan.

The capital projects are in two categories: (1) needed for growth, and (2) preservation of existing assets. The projects needed for growth can be funded by mitigations from new development. The district has developed a Concurrency Mitigation Fee Program that uses local emergency call data to determine the impact

of different types of land uses on the fire stations and apparatus of North Whatcom Fire and Rescue. Exhibit 20 uses Whatcom County’s Alternative Y growth forecasts (because it has the greatest impact on North Whatcom Fire and Rescue). The growth is multiplied times the mitigation fee per unit to forecast \$23.9 million of potential mitigation fee revenue from development that would occur under Whatcom County’s Alternative Y growth forecasts. If the mitigation fee rates were reduced to be 47.8851% of the original calculations, the resulting revenue from the concurrency mitigation fee program would equal the estimated \$11.4 million cost of the two new stations and apparatus . This is sufficient revenue to fund the capital projects needed to serve growth, but this revenue is available to the District only if Whatcom County implements the district’s Concurrency Mitigation Fee Program and it is accepted by the development community. The Concurrency Mitigation Fee Program is the only source of revenue to pay for capital needs to serve urban growth at urban levels because of state law limitations on district levy rates and impact fees.

Exhibit 20. Concurrency Mitigation Fee Revenue from Growth

Land Use	Growth 2008-2031	Units of Growth	Mitigation Fee per Unit	Mitigation Fee Revenue
Single Family	5,901	dwelling	2,078.45	\$ 12,264,933.45
Multi Family	1,304	dwelling	2,983.70	3,890,744.80
Retail	781,220	sq. ft.	2.95	2,304,599.00
Commercial	806,750	sq. ft.	3.79	3,057,582.50
Industrial	2,680,500	sq. ft.	0.89	2,385,645.00
Total				23,903,504.75
Adjustment				47.8851%
Probable Revenue				11,446,217.15

Source: Henderson, Young & Company using data from the Whatcom County Draft Environmental Impact Statement; ‘Planners Estimating Guide” by Arther C. Nelson, Planners Press, 2004; and North Whatcom Fire and Rescue Draft Concurrency Mitigation Fee Program, December 31, 2008

Funding of the asset preservation projects can be accomplished by issuing a bond in the amount of approximately \$3.4 million. Alternatively, the district could use current revenues for a slower “pay as you go” method of paying for asset preservation projects.

Operating Cost Implications of Capital Costs

Building and equipping a full paid fire station is expensive, but it is just the beginning of costs to be incurred by NWFR. It cost approximately \$1.1 million per year for the salaries, benefits, training, supplies for 3.5 lieutenants and 8.5 firefighters, plus equipment and vehicle maintenance for a new station, engine, aid vehicle.

However, new development that causes the need for new stations and apparatus will pay property taxes that the district uses for operating and maintenance expenses. The amount of growth forecast in Whatcom County's Alternative Y is estimated to add \$94 million to the tax base each year, and this amount accumulates (i.e., \$94 million in 2010, \$188 million in 2011, \$282 million in 2012, etc.). A cash flow analysis of the property taxes to be paid by this growth produces an addition \$122,000 in 2010, \$245,000 in 2011, \$368,000 in 2012, etc.). This additional revenue reaches \$1.1 million in 2018, at which time NWFR could operate the first additional station. If the district saved the growth revenue from earlier years, it could afford to open the first station as early as 2014. Similarly, the additional property taxes from growth reach \$2.2 million in 2027, at which time the second station could be operated. And if the district saved the growth revenue from earlier years, the second station could be opened as early as 2023.

A detailed analysis of the cash flow of the additional property tax from growth and the additional operating cost of new fire stations beginning in 2014 and 2023 indicates that the full operating cost of the stations for growth are paid by the property taxes from growth with neither surplus of deficit.

Financial Feasibility of Capital Facilities Plan

The probable sources of revenue described above indicate that it is financially feasible to build and operate 2 new stations (with engines and aid vehicles) during the period 2008-2031 if Whatcom County implements the district's Concurrency Mitigation Fee Program. If Whatcom County does not implement the Concurrency Mitigation Fee Program it would not be financially feasible for the district to pay for capital needs to build and operate 2 new stations (with engines and aid vehicles) during the period 2008-2031 necessary to serve urban growth in the Birch Bay UGA.

E. Coordination of CFP and Land Use Plan

RCW 36.70A.070 (3) (e) requires capital facilities plans to include a requirement to reassess the land use element if probable funding is inadequate to finance needed capital facilities. This requirement applies to Whatcom County because it is responsible for the land use element, and it develops the land use alternatives and population forecasts that support those alternatives. However, North Whatcom Fire and Rescue acknowledges the need for its capital facilities plan to be financially feasible in order to serve current population and forecasted growth. In the event that probable funding is inadequate to finance needed capital facilities the district cannot directly reassess the land use element, but it can employ the following strategies to make the capital facilities plan financially feasible: make adjustments to the level of service, the sources of revenue, or a combination, to achieve a balance between available revenue and needed capital facilities. This policy constitutes North Whatcom Fire and Rescue's response to the requirement of RCW 36.70A.070 (3) (e).

Adjusted Table 41: Concurrency Mitigation Fee By Land Use

Land Use	Dec. 31, 2008 Concurrency Mitigation Fee per Unit of Development	Unit of Development	Adjusted Concurrency Mitigation Fee per Unit of Development
			47.8851%
<u>Residential</u>			
Single Family and Duplex	\$2,078.45	per dwelling unit	\$995.27
Multi-Family	\$2,983.70	per dwelling unit	\$1,428.75
<u>Non-Residential</u>			
Hotel/Motel/Resort	\$7.68	per square foot	\$3.68
Medical			
Nursing Home	\$28.67	per square foot	\$13.73
Medical-Dental	\$12.41	per square foot	\$5.94
Commercial			
Office	\$3.79	per square foot	\$1.81
Retail	\$2.95	per square foot	\$1.41
Leisure Facilities	\$1.66	per square foot	\$0.79
Restaurant/Lounge	\$3.75	per square foot	\$1.80
Industrial/Manufacturing	\$0.89	per square foot	\$0.43
Institutions			
Churches/Non-Profit	\$1.21	per square foot	\$0.58
Education	\$2.07	per square foot	\$0.99
Special Public Facilities	\$4.23	per square foot	\$2.03
Agricultural: All			
Open Space, Forest, Water: All			

ADJUSTED TABLE 41: CONCURRENCY MITIGATION FEE BY LAND USE

Land Use	December 31, 2008 Concurrency Mitigatio Feeper Unit of Development	Unit of Development	Adjusted Mitigation Fee per Unit of Development (non-Sprinklered)	Adjusted Mitigation Fee per Unit of Development (Sprinklered)
			47.8851%	1 and 2 family = 50% All Other 75%
<u>Residential</u>				
Single Family and Duplex	\$2,078.45	per dwelling unit	\$995.27	\$497.63
Multi-Family	\$2,983.70	per dwelling unit	\$1,428.75	\$357.19
<u>Non-Residential</u>				
Hotel/Motel/Resort	\$7.68	per square foot	\$3.68	\$0.92
Medical				
Nursing Home	\$28.67	per square foot	\$13.73	\$3.43
Medical Dental	\$12.41	per square foot	\$5.94	\$1.49
Commercial				
Office	\$3.79	per square foot	\$1.81	\$0.45
Retail	\$2.95	per square foot	\$1.41	\$0.35
Leisure Facilities	\$1.66	per square foot	\$0.79	\$0.20
Resturant/Lounge	\$3.75	per square foot	\$1.80	\$0.45
Industrial/Manufacturing	\$0.89	per square foot	\$0.43	\$0.11
Institutions				
Chureches/Non-Profits	\$1.21	per square foot	\$0.58	\$0.14
Education	\$2.07	per square foot	\$0.99	\$0.25
Special Public Facilities	\$4.23	per square foot	\$2.03	\$0.51
Agricultural: All				
Open Space: All				