



TOWN COUNCIL WORK SESSION

Monday, March 16, 2015 @ 7:00pm
Front Royal Administration Building

Town/Staff Related Issues:

1. Update of Power Purchase Program - *Director of Energy Services*
2. CDBG Planning Grant Proposal- *Director of Planning/Zoning*
3. Continued Discussion of Chapter 148 Draft Code Amendment – *Director of Planning/Zoning*
4. Towing Services Request for Proposals (RFP) For Use by Police Department – *Town Attorney*

Council/Mayor Related Items

5. Board of Zoning Appeals (BZA) Term Expires
6. 2015 Virginia Municipal League (VML) Committee Nominations
7. Council Discussion/ Goals (*time permitting*)
8. Closed Meeting – Personnel Matter

Motion to Go Into Closed Meeting

I move that Council convene and go into Closed Meeting for the purpose of assignment, appointment, promotion, performance, demotion, salaries, disciplining, or resignation of specific public officers, appointees, or employees of a public body, pursuant to Section 2.2 3711. A. 1. of the Code of Virginia.

Motion to Certify Closed Meeting at its Conclusion [*At the conclusion of the Closed Meeting, immediately re-convene in open meeting and take a roll call vote on the following:*]

I move that Council certify that to the best of each member's knowledge, as recognized by each Council member's affirmative vote, that only such public business matters lawfully exempted from Open Meeting requirements under the Virginia Freedom of Information Action as were identified in the motion by which the Closed Meeting was convened were heard, discussed or considered in the Closed Meeting by Council, and that the vote of each individual member of Council be taken by roll call and recorded and included in the minutes of the meeting of Town Council.

1

Update of Power Purchase Program



Item No. 1

Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: Update of Power Purchase Program

Summary: Staff to update Council on the Town's power purchase "portfolio" program to including the recent procurement of additional power blocks for the years of 2017-2020.

Council Discussion:

Staff Evaluation: Staff providing an update on power purchase program.

Budget/Funding:

Legal Evaluation:

Staff Recommendations: Staff continues to evaluate and monitor the wholesale market along with new generation assets to fill the needs of energy supply to the community.

Town Manager Recommendation:

Council Recommendation:

Additional Work Session Regular Meeting No Action

Consensus Poll on Action: ___(Aye) ___(Nay)

Work Session

2

CDBG Planning Grant Proposal



Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: CDBG Planning Grant Proposal
Director of Planning & Zoning

Summary: In cooperation with the Northern Shenandoah Valley Regional Commission (NSVRC), Town Staff has prepared an outline for a possible future Community Development Block Grant (CDBG) application, as offered through the Virginia Department of Housing and Community Development (DHCD). The goal of the application is to move towards a façade improvement program. A façade improvement program would provide funding assistance to downtown property owners that wish to restore the exterior of their buildings. Before implementation funding can be applied for, a downtown revitalization plan is required. Therefore, the initial phase of the project is to submit for a planning grant for the development of a downtown revitalization plan.

A downtown revitalization plan would include a market & feasibility analysis, an economic restructuring plan, guidelines for façade improvements, a preliminary architectural report, project enhancement recommendations and branding recommendations. The Town will be able to take credit for the Town vision that was completed last year to reduce project costs. After the Downtown Revitalization Plan is complete, the Town would qualify to submit for implementation funding through the DHCD. A preliminary budget of the planning grant is shown below.

Deliverable	Budget	Responsible Partner	
ADMINISTRATION (10%)	3,500	Town Staff	
DOWNTOWN REVITALIZATION PLAN (80%)			
<i>Market & Feasibility Analysis</i>	<i>\$2,500</i>	NSVRC	SUBTOTAL: \$28,000
<i>Economic Restructuring Plan</i>	<i>\$5,000</i>	NSVRC	
<i>Façade Guideline Development</i>	<i>\$5,000</i>	NSVRC	
<i>Preliminary Architectural Report</i>	<i>\$7,500</i>	Consultant - TBD	
<i>Project Enhancements</i>	<i>\$5,000</i>	NSVRC	
<i>Branding</i>	<i>\$3,000</i>	NSVRC	
CLOSEOUT/ RETAINAGE (10%)	\$3,500	Town Staff	
TOTAL	\$35,000		

Notes: NSVRC has offered to provide an additional \$5,000 during FY 17 subject to Town & Commission approval. The NSVRC is responsible for any additional costs above the amounts specified above.

Council Discussion: This agenda item is scheduled for a work session review on 03/16/15.

Staff Evaluation: If Town Council supports this project, a resolution of support would be appropriate.

Legal Evaluation: The Town Attorney will be available at the work session for questions.

Town Manager: The Town Attorney will be available at the work session for questions.

Budget/Funding: \$35,000, Reimbursable through the grant. And additional \$5,000 possible through the NSVRC.

Council Recommendation:

Additional Work Session
 Regular Meeting
 No Action
 Consensus Poll on Action: ___(Aye) ___(Nay)

3

**Continued Discussion of Chapter 148 Draft
Code Amendments**

Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: Continued Discussion of Chapter 148 Draft Code Amendment
Director of Planning & Zoning

Summary: Several citizens spoke at the public hearing on February 23, 2015 regarding the draft update of Chapter 148 (Subdivision & Land Development Ordinance). Town Council tabled action on the draft amendment until the comments could be reviewed and discussed more thoroughly during a work session.

Attached with this coverage is the following information:

- Attachment A: Summary of Public Input. Staff has compiled a table that summarizes the public commenter's concern(s), references the relevant code section, and provides staff feedback.
- Attachment B: Comparison of Local Street Width Requirements. Staff has compiled a list of other jurisdictions and their street width requirements for comparison purposes.
- Attachment C: Illustrations of Street Width Examples. This is a slideshow, including pictures and a case study that were previously reviewed by the Planning Commission after on-site inspections that were conducted to evaluate street widths.
- Attachment D: Written Comments. These are the full written comments that are summarized under Attachment A.

Council Discussion: This agenda item is scheduled for a work session review on 03/16/15.

Staff Evaluation: The proposed street widths are comparable to the other localities researched. Reinstatement of the 32-foot wide street width, as recommended by the Planning Commission for low traffic streets, is an option to consider. Of the localities researched, only one other locality (Winchester) still requires sidewalks to be 4 feet in width, versus 5' or more. A couple wording changes are suggested in Attachment A.

Legal Evaluation: The Town Attorney will be available at the work session for questions.

Town Manager: The Town Attorney will be available at the work session for questions.

Budget/Funding: N/A

Council Recommendation:

Additional Work Session Regular Meeting No Action
Consensus Poll on Action: ___(Aye) ___(Nay)

Work Session



COMPARISON OF LOCAL STREET WIDTH REQUIREMENTS

LOCALITY NAME	PAVEMENT WIDTH (MIN.)	SIDEWALK WIDTH (MIN.)	NOTES
Town - Current	32' – 500 ADT or less 40' – 500 – 3000 ADT	4'	Includes Curb & Gutter Includes Parking
Town - Proposed	36' – up to 2000 ADT 40' – over 2000 ADT	5'- 6'	Includes Curb & Gutter Includes Parking 32' up to 1K ADT Removed
VDOT	29' – 2000 ADT or less 36' – 2001 – 4000 ADT	5'- 8'	Includes on-street parking – although large rural lots typically have minimal street parking. Does not include curb & gutter
Santa Rosa, CA	30' – less than 1000 ADT 36' - Over 1000 ADT	5'+	Includes Curb & Gutter Includes Parking Width reduce for 200 ADT or less when parking not required
Winchester, VA	36' – category 1 40' – category 2 48' – category 3	4'	Waivers may be granted for street widths by Town Council
Culpeper, VA	Per VDOT	Per VDOT	Curb required along specified streets and as determined necessary
Harrisonburg, VA	26' – under 200 ADT 34' – 40' for 200 ADT+	5'	26' width is approved as a waiver process and requires a parking restriction on one side
Town of Strasburg, VA	34' minimum or larger	5'	Larger street width determined as needed by the Town's Public Works Director
City of Virginia Beach, VA	36'	5' 8' minimum when a shared use path, 10' recommended	30' allowed in a couple scenarios, including a certain type of townhouse development & when no more than 10 lots are on a cul-de-sac, subject to certain minimum driveway standards and minimum lot sizes
City of Gaithersburg, MD	32' – Residential Secondary 36' – Residential Primary	5'+	Planning Commission may reduce as low as 26' upon review of subdivision design
Town of Leesburg, VA	34' – up to 500 ADT 36' – up to 2000 ADT	5'+	Width may be reduced as low as 26' when on-street parking is limited or eliminated

Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
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David Vazzana	148-820.A.	1637-1646	<i>Pushes legal limits/misleading</i>	<p>(4) On-site road improvements shall be required for new subdivisions or developments based on the requirements of this chapter, and shall be evaluated based on what is needed to safely accommodate the proposed traffic volumes at build-out of the subdivision or development.</p> <p>(5) In accordance with Virginia Code §15.2-2242.A.4, the Town may require certain off-site road improvements that are reasonable and necessary, the need for which is substantially generated and reasonably required by the construction or improvement of the subdivision or development. Off-site road improvements may include, but are not limited to, acceleration and deceleration lanes, a center turning lane, a parallel service drive, reverse frontage lots, and/or the dedication of additional right-of-way.</p>	<p><i>Draft Rewording:</i></p> <p>(4) On-site road improvements shall be required for new subdivisions or developments based on the requirements of this chapter, and shall be evaluated based on what is needed to safely accommodate the proposed traffic volumes at build-out of the subdivision or development.</p> <p>(5) In accordance with Virginia Code §15.2-2242.A.4, the Town may require accept voluntary funding for certain off-site road improvements that are reasonable and necessary, the need for which is substantially generated and reasonably required by the construction or improvement of the subdivision or development.</p>
David Vazzana	148-1100.A.	4600	<i>Clarify that it is not \$250 per variance</i>	9. For processing as Subdivision Variance - \$250.00	<p><i>Draft Rewording:</i></p> <p>9. For processing as Subdivision Variance or Special Exception - \$250.00 per application submission, not per variance or exception standard.</p>

Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
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David Vazzana	148-890.A.	2818-2823	<i>Should not pay until final plat or construction whichever is later.</i>	B. No site development plan, subdivision development plan, overlot grading plan 2818 and/or final plat that is subject to a development surety shall be approved, nor a building or 2819 land disturbance permit issued for development, until the development surety instrument 2820 for that particular development, or phase of development, has been submitted and certified 2821 by the Director as being consistent with the indemnification and other requirements and 2822 format of the Town.	<p>Once a subdivision plat is recorded all ROW shown on the plat is dedicated for public use and a responsibility of the Town. The development surety is the only protection that the Town has that the roads will be completed by the developer.</p> <p>If the development surety is not required at the time of final plat recordation the Town is at greater risk because the developer could go bankrupt or disappear after the lots are sold.</p> <p>Some localities require that the roads in subdivisions be constructed and accepted for public use before any permits are issued. This is not proposed because the Town understands that it is difficult for a developer to finance road construction entirely up front.</p> <p>A preliminary plat can be applied for to obtain a vested right in the project and does not require bonding. Furthermore, a subdivision can be broken down into different phases to provide greater flexibility.</p>
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Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
David Vazzana	148-840.D.	2092-2219	<p><i>This is an additional layer of gov't oversight.</i></p> <p><i>Should be removed.</i></p>	See draft code.	<p>The requirements are standard engineering practices that are appropriate and consistent with VDOT storm drainage requirements.</p> <p>There is a difference between water "quality" control and water "quantity" control. The Town maintains stormwater facilities and has an interest in ensuring they are properly designed facilities in terms of design (maintenance) and water "quantity" control. The draft ordinance does not regulate water "quality" control, as controlled by the State permitting process.</p>
David Vazzana	148-820.C.2.	1680-1690	<p><i>Minimum ROW should be minimum required to accommodate all necessary elements.</i></p>	<p><i>Summary of Minimum ROW widths:</i></p> <p><i>Alleys: 20'</i></p> <p><i>Local Streets (up to 1,000 ADTs): 50'</i></p> <p><i>Local Streets (up to 2,000 ADTs): 55'</i></p> <p><i>Collector Streets: 65'</i></p>	<p>The ROW widths are reasonable, consistent and not excessive.</p> <p>The difference in what is required and what is the absolute minimum necessary is minimal. For a 36' wide street, the differences can effectively be compared to either a 2 foot wide grass area between the sidewalk and the street, or a 4 ½ foot grass area between the sidewalk and the street. Other reasonable considerations for more space is as follows: mailboxes, signage, redesign options such as median installation if needed in the future, buffering for improved walkability along the street</p>

Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
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					(buffering between traffic), space for snow storage, and easier access and room for utility installation and maintenance.
David Vazzana	148-820.D.	1696-1716	Streets should be narrower. 29' with parking on both sides, 24' with parking on one side.	See separate handout.	See separate handout.
David Vazzana	148-820.M.	1814-1824	This appears to be directed at FRLP and is illegal.	2. Where feasible, each subdivision shall provide two (2) connections to an existing public street where the traffic generated from the subdivision or development is between five hundred one (501) and two thousand (2,000) ADT's. Three (3) road connections shall be provided where the traffic generated exceeds two thousand (2,000) ADT's. In situations where only one (1) street connection is physically possible, due to topography, site distance or road frontage, the single entrance street shall be a four-lane restricted access divided road with a length of not less than two hundred fifty (250) feet for roads generating two thousand one (2,001) or more ADTs, and for every additional five hundred (500) ADTs generated, the four lane divided street standard shall be extended an additional one hundred (100)	The draft code would apply to all future development. The requirement for multiple street connections is similar in scope to those adopted in other jurisdictions and VDOT for the purpose of promoting public safety/access and walkable communities.

Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
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				feet. Streets with two thousand (2,000) or fewer ADTs shall not be subject to this requirement.	
Dan McCarty	148-850.D.	2378-2381	5' Sidewalks Should be Kept	2. The minimum design standards for sidewalks shall be at least six (6) feet in width when abutting the curb, and a minimum of five (5) feet when offset from the curb. For the latter, the land located between the sidewalk and the curb shall comply with the Construction Standards and Specifications.	None – supports draft language / standards.
Dan McCarty	148-820.D.	1696-1716	Streets should be wider, not narrower.	See separate handout.	See separate handout.
Eva Challis	148-820.D.	1696-1716	Supporter of wider streets, not narrower. See the Firewise Community documents she provided under Attachment D.	See separate handout.	See separate handout.
Bill Barnett	148-850.D.	2378-2381	4' is adequate for sidewalks.	2. The minimum design standards for sidewalks shall be at least six (6) feet in width when abutting the curb, and a minimum of five (5) feet when offset	A 5' sidewalk is consistent with VDOT standards. Many other localities require 5', or wider, sidewalks. VDOT requires an 8' wide sidewalk when abutting the street.

Name	Section	Lines	Comment (Summarized)	Proposed Language	Staff Response
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				from the curb. For the latter, the land located between the sidewalk and the curb shall comply with the Construction Standards and Specifications.	The proposed draft amendment is 6' in such cases.
Bill Barnett	148-820.D	1696-1716	Supporter of increased development flexibility and narrower streets.	See separate handout.	See separate handout.
Chris Ramsey	148-820.O.	1951-1969	Against additional regulation on developers. Against 148-820.O. in particular. Should not apply to both streets for corner lots. Against increased sidewalk width. [no written comments]	1. New structures with a front setback of less than 50 feet shall be constructed at least two (2) feet above the centerline grade of adjoining streets, as measured from the front ground floor elevation.	<i>Draft Rewording:</i> 1. New structures with a front setback of less than 50 feet shall be constructed at least two (2) feet above the centerline grade of the street adjoining streets that adjoins the front yard, as measured from the front ground floor elevation.
Joe Duggan	--	--	Against increase in street widths. Concerned about meeting DEQ regs. [no written comments]	See separate handout.	See separate handout.

Street Widths Picture Examples

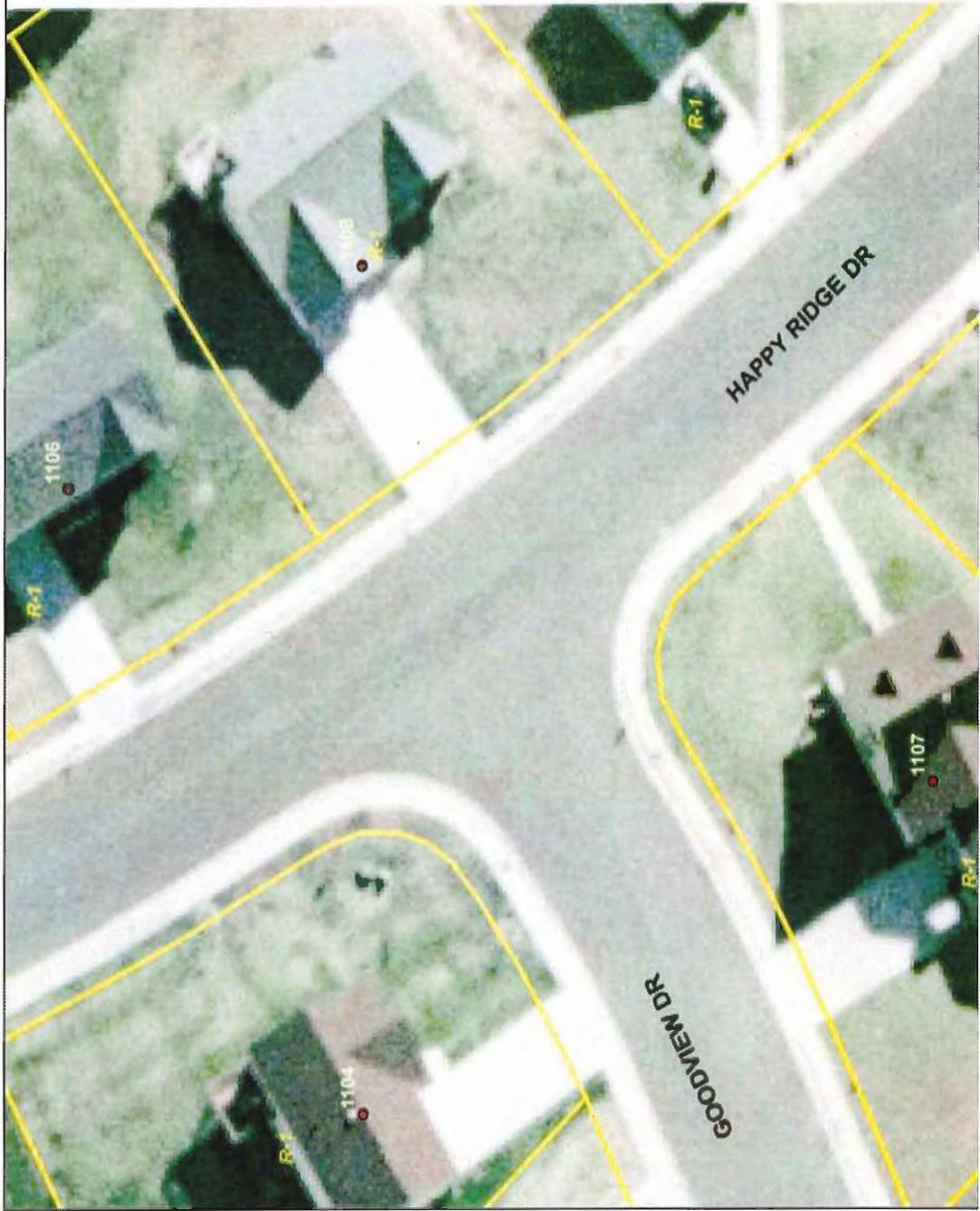
CHESTER STREET

32' Wide



HAPPY RIDGE & GOODVIEW DRIVES

40' Wide



SHENANDOAH AVENUE

40' Wide



SALEM AVENUE

32' Wide

VIRGINIA AVENUE

36' Wide



4 ½ Foot landscape strip between sidewalk and curb.

KERFOOT AVENUE

36' Wide



No curb on park side

Lee Street

31' Wide



Shenandoah at Lake Frederick

22' Wide, no sidewalks - no parking



A Case Study

STUDY AREA = 151.6 ACRES
NUMBER OF LOTS = 394
DENSITY = 2.6 LOTS/ACRE

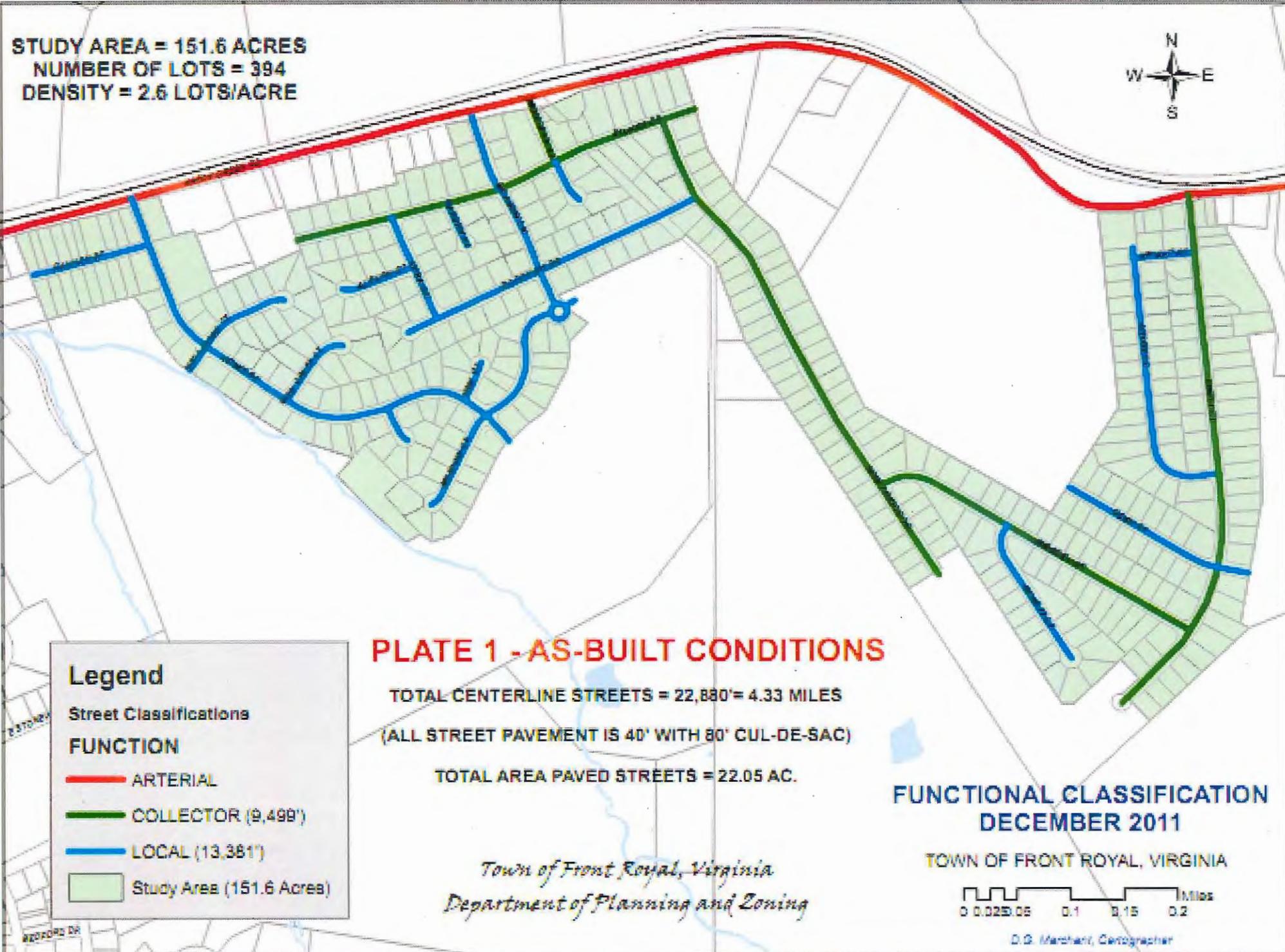


PLATE 1 - AS-BUILT CONDITIONS

TOTAL CENTERLINE STREETS = 22,880' = 4.33 MILES
(ALL STREET PAVEMENT IS 40' WITH 80' CUL-DE-SAC)

TOTAL AREA PAVED STREETS = 22.05 AC.

Legend

Street Classifications

FUNCTION

-  ARTERIAL
-  COLLECTOR (9,499')
-  LOCAL (13,381')
-  Study Area (151.6 Acres)

FUNCTIONAL CLASSIFICATION
DECEMBER 2011

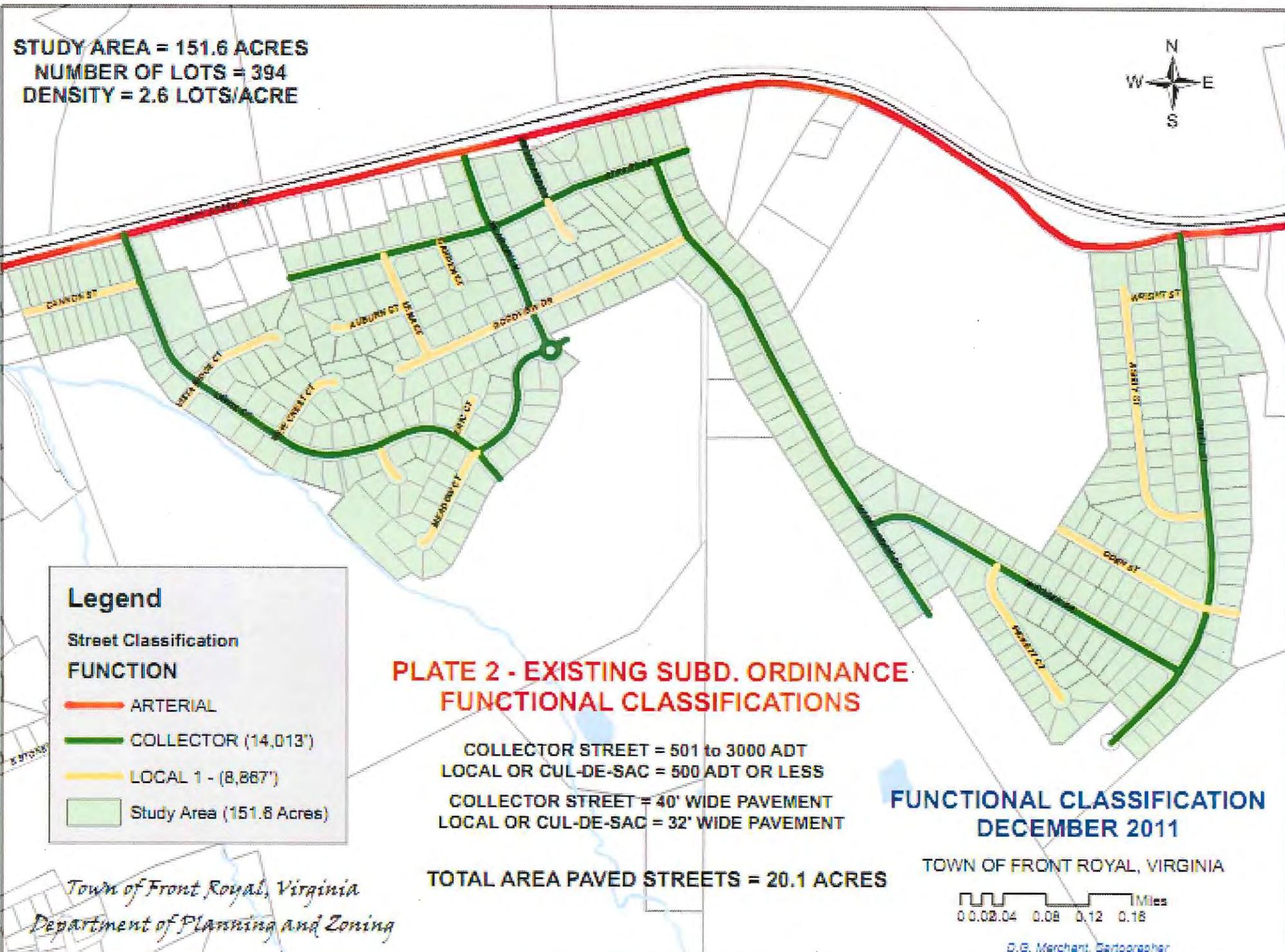
TOWN OF FRONT ROYAL, VIRGINIA



D.G. Merchant, Cartographer

*Town of Front Royal, Virginia
Department of Planning and Zoning*

STUDY AREA = 151.6 ACRES
 NUMBER OF LOTS = 394
 DENSITY = 2.6 LOTS/ACRE



Legend

Street Classification
FUNCTION

- ARTERIAL
- COLLECTOR (14,013')
- LOCAL 1 - (8,867')
- Study Area (151.6 Acres)

**PLATE 2 - EXISTING SUBD. ORDINANCE
 FUNCTIONAL CLASSIFICATIONS**

COLLECTOR STREET = 501 to 3000 ADT
 LOCAL OR CUL-DE-SAC = 500 ADT OR LESS

COLLECTOR STREET = 40' WIDE PAVEMENT
 LOCAL OR CUL-DE-SAC = 32' WIDE PAVEMENT

TOTAL AREA PAVED STREETS = 20.1 ACRES

**FUNCTIONAL CLASSIFICATION
 DECEMBER 2011**

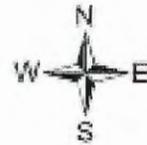
TOWN OF FRONT ROYAL, VIRGINIA



D.G. Merchant, Cartographer

*Town of Front Royal, Virginia
 Department of Planning and Zoning*

STUDY AREA = 151.6 ACRES
NUMBER OF LOTS = 394
DENSITY = 2.6 LOTS/ACRE



Legend

Classification per Proposed Ordinance
FUNCTION

-  ARTERIAL
-  COLLECTOR (5,245')
-  LOCAL 2: 2000-4000 ADT (8,388')
-  LOCAL 1: <2000 ADT (9,247')
-  Study Area (151.8 Acres)

PLATE 3 - PROPOSED SUBD. ORDINANCE FUNCTIONAL CLASSIFICATIONS

LOCAL STREET 1: <2000 ADT = 32' PAVEMENT
LOCAL STREET 2: 2000-4000 ADT = 36' PAVEMENT
COLLECTOR STREET <4000 ADT = 40' PAVEMENT

TOTAL AREA PAVED STREETS = 19.24 ACRES

FUNCTIONAL CLASSIFICATION
DECEMBER 2011

TOWN OF FRONT ROYAL, VIRGINIA

 Miles
0 0.02 0.04 0.08 0.12 0.18

D.G. Merchant, Cartographer

Town of Front Royal, Virginia

Department of Planning and Zoning

03/02/2015

ATTN : PLANNING DEPT AND TOWN COUNCIL

I CHARGE YOU WITH YOUR RESPONSIBILITY TO CITIZENS/ VOTERS ALREADY LIVING IN AND AROUND WARREN COUNTY.

A TOP PRIORITY 24/7 SHOULD ALWAYS BE ROAD ACCESS.

MY FATHER TAUGHT ME THAT A JOB WORTH DOING WAS WORTH DOING RIGHT.

MILLIONS OF DOLLARS ARE GOING TO BE MADE BY SOME.

CORNERS ARE NOT TO BE CUT NOW.

MARK MY WORDS THERE WILL BE ATTEMPTS IN-THE FUTURE, DOWN THE ROAD.

OFCOURSE THE SIDEWALKS SHOULD BE 5 FEET WIDE. WE MUST BE PRO ACTIVE AND ANTICIPATE THAT OUR POPULATION IS AGING. THEREFORE THERE WILL BE A NEED FOR WHEEL CHAIR ACCESS.

IT IS ALSO NOTEWORTHY THAT IT IS IMPOSSIBLE TO WALK SIDE BY SIDE ESPECIALLY IF THERE ARE UTILITY POLES IN THE SIDEWALKS TO GO AROUND.

STREETS SHOULD BE MADE WIDER FOR FIRE TRUCKS, POLICE, SCHOOL BUSES, MOVING VANS, EVEN DELIVERY TRUCKS.

THERE NEEDS TO BE ROOM FOR AMPLE PARKING ON THE STREET CURBSIDE.

SINCERELY

DAN McCARTY

PO BOX 1611

FRONT ROYAL VA 22630

FRLP Supplemental Comments on the proposed SLDO

March 4, 2015
The Honorable Timothy W. Darr and Town Council
Town of Front Royal, Virginia

Dear Mayor Darr and members of Town Council,

I would like to thank Council for the opportunity to submit additional comments on the proposed Subdivision and Land Development Ordinance (SLDO). FRLP has been encouraging the Town to adopt more Earth Friendly design standards for many years. Similar discussions have occurred in communities throughout the nation for decades.

FRLP has limited its comments here as much of what we have proposed in the past would require an almost complete re-write (and perspective) on the part of the Town and we recognize that would be impractical at this point. I am working on many of those now (and on ch. 175) and we hope to discuss these as well with Council moving forward.

Proposed SLDO: General Comments.

I would like to emphasize that in no way would any of these proposed changes prohibit the type of development standards contemplated by the proposed ordinance – our argument is that the proposed ordinance fails to incorporate many accepted design, engineering, and environmentally sound land use and development standards.

In affect, the Town is going against environmentally friendly development techniques accepted by the State and Federal government. Low impact development should be the standard – not the exception. Further, failing to incorporate or allow such things “by-right” in the SLDO will hurt economic investment in the Town. For example, the Federal Energy Independence and Security Act of 2007 states that:

“The sponsor of any development or redevelopment project involving a federal facility... shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property...”

Federal law requires this (Low Impact Development Strategies) for all Federal facilities. The State of Maryland requires LID standards as the first option. The state of Virginia agreed to implement LID by 2005 in the 2000 Chesapeake Bay agreement but it was an “unfunded mandate”. Locally, the 1997 and 2007 Comprehensive plan is filled with innumerable recommendations (many of them found on page 25, 26) that direct the Town to reduce developments impact on our natural environment and these ideas were completely left out of the proposed “complete rewrite/update”. The Town’s Comprehensive planning efforts are meaningless without an attempt by the Town to codify those recommendations – that’s how, and why, this “update” began in 2007.

Proposed SLDO Design Standards and the Environment: General Comments.

The Center for Watershed Protection (www.cwp.org) has an ordinance checklist that grades the impact of a locality's development regulations on the local watershed and provides a good overall assessment on the environmental friendliness of local codes and ordinances. Scores between 90-100 mean the Community has "above average provisions that promote the protection of streams, lakes and estuaries." The proposed ordinance scored below 20 points. Scores less than 60 (the lowest rating category) mean that the "Development rules definitely are not environmentally friendly. Serious reform of the development rules is needed." Resources:

- a. CWP, "Better Site Design" Handbook and "Local Codes and Ordinances Worksheet" (www.cwp.org).
- b. "Model development Principles for the Central Rappahannock", A working group from Stafford County, Spotsylvania County, and the City of Fredericksburg (www.riverfriends.org) - http://www.riverfriends.org/Portals/0/LID_principles.pdf.

Consider using VDOT Standards for Street Width/ R.O.W./ and Entrances.

Adding 7 feet of pavement width to VDOT design standards places an undue disadvantage on development in Town versus in the County or elsewhere in the Commonwealth. The proposed ordinance already references (and requires) VDOT standards 7 times in sections 820.C, 820.D, and 820.M – FRLP believes the design standards in these three sections should be removed and the VDOT standards should be used instead. Specifically, and per VDOT;

- a. 820.C – VDOT - Minimum R.O.W. of 40', or the minimum required to accommodate all necessary elements, as opposed to 50', 55' and 65' as proposed (increased R.O.W. requirements increases a developments "footprint"),
- b. 820.D – VDOT - Neighborhood streets of 29' (parking on both sides) and 24' (parking on one side) instead of only 36' or 40' as proposed, (The Virginia Fire Marshall requires a 15' travel way – i.e. a 29' street has a 7' parking strip on each side and a 15' travelway – and thus meets State Fire safety requirements)
- c. 820.M(2) – The last 2 sentences - this language appears to only apply to the FRLP development. VDOT and the Town will by law require that any proposed new streets, and in this case a development entrance road, will be of sufficient size to meet the proposed traffic volumes – this language requires additional road/traffic capacity beyond that – which is illegal – and unnecessary.

VDOT design standards have been thoroughly reviewed for safety by teams of engineers and design professionals - resources and time that the Town does not have. Further, if a particular road needs to be larger the Town Council can require a larger road during the

plan review and approval process – you have this ability per 148-820.C (3) - which should give Council peace of mind that these standards can be increased when warranted. Again, VDOT standards are minimums – nothing prevents someone from building a larger street if that is what the market wants. We are asking that Council consider VDOT standards to be reasonable. They should be the standard – not the exception. Resources:

- a. Safety should be our #1 priority when designing streets – not speed - See “Confessions of a Recovering Engineer” (StrongTowns.org), <http://www.strongtowns.org/journal/2010/11/22/confessions-of-a-recovering-engineer.html>
- b. “Narrow Streets are the Safest”, Better Cities and Towns, www.bettercities.net, (0.32 automotive injury accidents can be anticipated per year per mile on a 24-foot-wide street, compared to 1.21 on a 36-foot-wide street).
- c. “Bad call: Wide streets in the name of fire safety”, Better Cities and Towns, <http://bettercities.net/news-opinion/blogs/robert-steuterville/21128/bad-call-wide-streets-name-fire-safety>
- d. SmartCode Municipality (v. 9.2, table 3B) lists the proposed 36’ wide streets as being appropriate for 15,000 VPD.
- e. Change takes time – and that’s o.k.
 - a. Concern: not enough parking! – The newer subdivisions in Town have 10 times more parking than is needed. Why not let the market/ a homebuyer decide.
 - b. Concern: you have to slow down to pass another car or a school bus on a narrow street! That is the point – to slow traffic down. (i.e. The Traffic circle at Riverton – at first it was confusing to drivers – but now drivers know how to navigate it (and it is efficient))... It’s traffic calming... it is good neighborhood design – neighborhoods designed for people - not cars.

Stormwater Management (840.D):

SWM is heavily regulated at the State and Federal level. The proposed ordinance adds another layer of government where it is not needed. This only makes the process more confusing, more expensive, and less efficient and effective. FRLP believes this section should be removed or simply limited to requiring that a sub-divider meet all applicable State and Federal regulations governing SWM.

In addition, this new oversight from State and Federal government will mean that simply keeping the same design standards will add tremendous costs. The ordinance as proposed essentially maximizes the overall “footprint” of development and the impervious cover of that development. The sub-divider will have to mitigate these impacts – placing another undue cost on a project in the Town versus in the County or the Commonwealth.

Bonding Requirements and Costs:

I believe less Government is generally better government. Regulatory and permitting costs have been increasing significantly over the past 10-15 years. This update is no different. Adding costs at this time is certainly not helpful – Front Royal has seen single digit building permits for five years. Building a home that median household incomes can afford (or building any new home) becomes even less viable with every additional cost. Virginia has the second highest regulatory, permitting, and impact fees in the nation. In my opinion, these are taxes. There is a point at which taxes and fees are so high that it makes no sense to invest in a project in Town – and no one will.

The new bonding requirements should be required only at the time of construction (890.A). Bonding costs are significant and can make or break a project. A sub-divider should not be forced to pay bonding costs until construction begins or at final plat approval – whichever is later.

As per the schedule of “Fees”, I would respectfully request that the Town consider waiving any fees above the initial amount (\$250) for a variance to these standards – or perhaps state that if a sub-divider submits 20 design changes on one project they are only subject to one \$250 fee. In 2012, Council added these “processing fees” – which added \$40,000 in fees for the Town to process plans for the FRLP 150 acre project alone.

In addition to increased costs, development regulations continue to push the limits of the law when it comes to what can legally be required of a sub-divider. There are a handful of regulations (820.A(4)(5), 820.M) which are not unequivocally illegal as written but could easily be applied to force exactions that are illegal. At best, they are misleading.

Conclusion:

There are better ways to develop – and to minimize future Town maintenance costs - they have been contemplated and recommended in the Town Comprehensive Plans for the past 20 years they have just never been incorporated into law – so they are “illegal”.

I hope that Council will keep an open mind to these things as we move forward. There is a big difference between allowing a sub-divider to build 36-foot streets and requiring them to do so. If there are reasonable arguments for using a different standard or design methodology the Town should not be adding unnecessary hoops, expense, and oversight in order to use those standards – and, at a minimum, we believe these standards as approved by the State should pass this test and be allowed “by-right” in the SLDO.

Sincerely,
David Vazzana
202.215.0038

CC: Town staff
Town P.C.

Statement Requested By Mayor Tim Darr at Feb. 23, 2015 public hearing

March 3, 2015

Bill Barnett

Consultant: FRLP

1115 Buck Mountain Road

Bentonville, VA 22610

billbarnett@centurylink.net

Mayor Darr, Town Council, Planning Commission and staff;

Thank you for allowing the public time to give additional input, before acting upon the proposed new sub-division ordinance. This Council is wise to take all the time required to assure we have an ordinance that guides future development. This can be done with safe, livable, people-friendly neighborhoods, while still protecting our environment and not burdening the Town with unreasonable maintenance cost.

I understand the safe thing to do is to stick with what you have done in the past, tweak it here and there, as needed, and move on. The problem is, this way of planning brings your problems of the past into the future. Wide streets and sidewalks in the past were a sign of prosperity. Streets like Manassas Ave. looked impressive and modern, when they were built. Today we know they are unnecessarily wide and result in additional police traffic patrol, (note the electronic speed alert sign used many times there) and much higher cost to resurface. Shenandoah Ave. frequent speeding problems required Council to allow "traffic tempering" devices to slow drivers down upon what looks and feels like a 35mph boulevard. I have no idea why a wider sidewalk is being considered. Bicycles and such are prohibited and surely no one minds going single file around a wheel chair or stroller. The additional cost of maintenance would be with us forever, with no apparent benefit being met. Most new large developments will surely have bike and walking paths to tie into the Town's impressive network.

Water! Water has always been an issue that requires our very best efforts to manage even as science and experience proves our past methods inadequate. I can remember when many cities dumped raw sewage into waterways (Silent Spring) and the Potomac River was dead around Wash. DC. Today, with the exception of a few new shopping centers and most recent developments, all of our storm water dumps untreated directly into Happy Creek or the Shenandoah River along with the sediment, oil, pesticides, and who knows what else. We recently had a mysterious chemical dumped at a car wash flow directly into Happy Creek. If we stick with the past practices, we will continue to have all the lawns, driveways drain onto our boulevard-sized streets, channeled by curb and gutter into massive underground storm water conduits.

The big difference is, they will no longer be able to "dump" this into out streams untreated, so systems must be built to clean the water before it is discharged. Those systems will become the property of Front Royal, and be maintained forever.

Today, Front Royal has no alternative by-right standards to allow a developer to build an environmentally friendly community. This would be a community where the streets would only be as wide as required by VDOT and curb and gutter would be used only where engineering showed soil conditions required it. Water would be managed where possible with water gardens, ponds, open space (of which there is more because of reasonable street widths), and retaining the natural contour of the land. A community to be proud of!

Caution needs to be used when increasing the cost of development, be it residential, or commercial. The only source for paying for increased and unnecessary impervious surfaces such as wider streets and sidewalks is the person that eventually buys a home or office in the subdivision. All development cost are included in the price of a building. The added cost may be represented by price, house size, landscaping, and community amenities, but it is surely paid for by those that buy the homes. The infrastructure maintenance costs are shared by every Front Royal citizen.

FRLP's property represents a large percentage of Front Royal's land. Help us to make it an integral part Front Royal, that is innovative, environmentally responsible, and a livable people-friendly community. Do this because you are; "looking out for the people, not the developer".

Thank you

Bill

March 3, 2015

Bill Barnett
Consultant: FRLP
1115 Buck Mountain Road
Bentonville, VA 22610
billbarnett@centurylink.net

Mayor Darr, Town Council, Planning Commission.
This is the handout I supplied at the meeting.



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[Municipal Stormwater
Manager](#)

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Green Streets Basics and Design

BMPs to Programs

The evolution from centralized stormwater management to greener, more sustainable BMPs necessitates a progression from installing individual practices to implementing broader water quality programs. Conventional end-of-pipe management practices are often installed myopically, focused primarily on collecting runoff from one drainage area. The first applications of stormwater BMPs were similarly applied, focused on addressing runoff from a small area. However, rather than installing a single rain garden or green roof disconnected from a larger network of management practices, stormwater BMPs can be components of broad program initiatives intended to address significant sources of pollution.

Green streets are an example of how individual stormwater BMPs are used as elements of a broader program aimed at mitigating a

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significant source of stormwater pollution. Urban roads, along with sidewalks and parking lots, are estimated to constitute almost two-thirds of the total impervious cover in urban areas and contribute a similar ratio of runoff. Green streets use combinations of stormwater BMPs to enhance water quality and improve the design and function of urban roads. WERF defines green streets as those that:

- Mimic local hydrology prior to development
- Provide multiple benefits including
 - Stormwater management and volume reductions
 - Providing a key link in the green infrastructure network
 - Enhancing aesthetics
 - Improving local air quality by intercepting airborne particulates and providing shade
 - Enhancing economic development
 - Improving the pedestrian experience

The use of green streets allows stormwater BMPs to act in a broader environmental capacity than solely managing stormwater. For example, Chicago's Green Alley program, by using light-colored permeable and recycled concrete, addresses urban heat island and material disposal issues simultaneously with stormwater management.

Common Elements of Green Streets

Green streets can incorporate a wide variety of design elements including street trees, permeable pavements, bioretention, and swales. Although the design and appearance of green streets will vary, the functional goals are the same. Green streets techniques will encourage the interaction of stormwater with soil and vegetation to promote infiltration and retention.

Narrower Street Widths

One reason that streets constitute such a significant source of stormwater volume and pollution is the impervious area associated with them. Green streets first reduce stormwater impacts by eliminating unnecessary impervious area. Many urban and suburban streets are sized to meet code requirements for emergency service vehicles, on-street parking, and free flow of traffic. These code requirements often result in streets being oversized for their typical everyday functions. The Uniform Fire Code requires that streets have a minimum 20 feet of unobstructed width; a street with parking on both sides would require a width of at least 34 feet. In practice, many

suburban and urban streets may be much wider than this as local design practices have increased street widths to 40 and 50 feet. There is often a large percentage of street impervious area that serves no practical purpose other than generating stormwater runoff. In addition to stormwater concerns, wide streets have many detrimental effects on neighborhood livability, traffic conditions, and pedestrian safety.

Many communities have adopted narrower street width standards while also accommodating emergency vehicles by developing alternative street parking configurations, prohibiting parking near intersections, providing vehicle pullout space, and using smaller block lengths. A key to identifying and successfully codifying narrow street widths is coordination amongst departments, including fire, transportation, and public works.

Jurisdiction	Street Width (in feet)	Parking Condition
Phoenix, AZ	28	parking both sides
Santa Rosa, CA	30	parking both sides, <1000ADT
	26-28	parking one side
	20	no parking
	20	neck downs at intersection
Orlando, FL	28	parking both sides, res. Lots > 55' wide
	22	parking both sides, res. Lots > 55' wide
Birmingham, MI	26	parking both sides
	20	parking one side
Howard County, MD	24	parking unregulated
Kirkland, WA	12	alley
	20	parking one side
	24	parking both sides - low density only
	28	parking both sides
Madison, WI	27	parking both sides, <3DU/AC
	28	parking both sides, 3-10 DU/AC

ADT: Average Daily Traffic; DU/AC: dwelling units per acre

3/2/2015

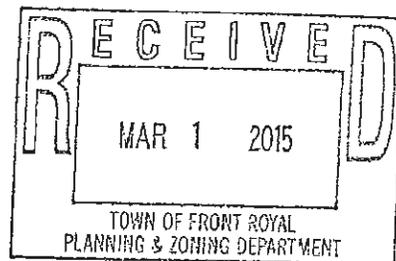
To Whom It May Concern

I am very active with the Firewise Communities in Warren County. I wish to go on record in support of the revised subdivision ordinances that are being reviewed by council. Safety is so important in planning any new subdivisions. Roads need to provide adequate room for parking and still allow two way traffic to flow even when emergency vehicles are answering a call.

Private lanes and driveways.

- Private lanes and driveways shall provide a minimum unobstructed width of twelve (12) feet and, where practical, a minimum unobstructed clearance of thirteen feet six inches (13' 6").
- Any private lane or driveway in excess of three hundred (300) feet in length shall be provided with turnarounds. Turnarounds shall be an all-weather road surface and shall have inside turning radii of not less than forty (40) feet, or as an alternative, a "hammerhead-T" turnaround (a "T"-shaped, three-point turnaround) that is no narrower than the road it serves. The top of the "T" shall be a minimum of forty (40) feet long.
- Private lanes that connect with a road or roads at more than one point may be considered as having a turnaround if all changes of direction meet the radii or hammerhead-T requirements for turnarounds. The zoning administrator may permit modification of the turnaround requirements to an alternative that substantially accomplishes the intent of this division, to allow a public safety vehicle(s) to safely ingress and egress during a fire or public safety emergency.
- Private lanes and driveways in excess of two hundred (200) feet in length and less than VDOT subdivision street standards in width shall be provided with turnouts in addition to turnarounds. Turnouts shall be spaced so that drivers can see from one turnout to the next where practical and will be installed at least every four hundred (400) feet, or at the midpoint if the private lane or driveway is between two hundred (200) and eight hundred (800) feet in length. Turnouts shall be an all weather road surface at least 10 feet wide and 30 feet long.

From
Eva Challis





'Speaker Profile' continued from Page 1

WILDFIRE AND LIFE SAFETY - AN ENGINEERING APPROACH

Smalley notes several critical considerations in determining how and when to evacuate. These include officials having a clear understanding as to why total evacuation is necessary; having an established means of egress consisting of a network of roads that are safe, well marked, and wide enough to accommodate exiting traffic and its potential volume; educating residents about procedures; and knowing whether there are any residents who may not be able to act quickly (such as residents of assisted living and nursing facilities, or individuals confined to a wheelchair).

There is also the issue of those in the area who may not be properly informed, such as visitors, workers who are temporarily stationed at local sites or making occasional deliveries, and individuals with cognitive problems who may not understand orders or directions. Lastly, there is the consideration that evacuation may be more dangerous than an alternative. "Many of the lives lost in wildfires in the U.S. and abroad have occurred in the process of evacuation," says Smalley.

He adds, "In the event the decision to stay in place is made, the resident must understand and accept the risks, what to expect, and what to do. Staying in the home is not passive and the resident must be actively engaged in the physical preparation of their home, as well as their own mental and emotional preparation. The fire, when it comes, will be big, hot, and loud - to the extreme.

"The decision is not to be made lightly, nor with the expectation that if they get into trouble, firefighters will immediately come to their rescue. It's not an 'either-or' decision, but a proposition for arriving at a balanced approach to fire and life safety, where life safety is maximized."

Smalley also suggests that focusing on the wildland/urban interface (WUI) as the problem often distracts us from correcting the threat to life safety and homes. "We

must remember that the WUI is a result of many factors. For example, the failure of jurisdictions to support sound community planning, the lack of land use laws and practices, construction shortcomings because of inadequate codes, and the ease with which waivers are given by local boards are just a few of the problems. We might ask ourselves, if we were to focus on these and other contributing factors, what might the interface look like in the next 10 to 20 years?" He points out that it is these very issues that the Firewise Communities/USA Program tackles. "You correct the problems to change the result."

He adds, "All too often, people make decisions based on past experiences, which may not differ widely in the case of wildfires. It's what I refer to as the 'hammer' decision model. If all you have is a hammer, everything looks like a nail. One tool to deal with the WUI is not enough. Through Firewise, communities find they have many more tools and options for protecting themselves, their homes, and their common ground."

Another resource that Smalley recommends is NFPA 550, *Guide to the Fire Safety Concepts Tree*, as a good introduction to helping communities in making important decisions and how to consider them as they relate to designing safety in structures, such as how fire events should be handled, how smoke will be controlled, and what happens to occupants.

He stresses, "NFPA 550 provides guidance for evaluating how fire protection is to be considered, not what is to be done. It is best used in discussion among fire and emergency professionals and their citizens as a way to explore more options for providing safety to lives and property." He adds, "In the WUI, we can learn a lot from the built environment in looking at options available for designing safer residential communities."

In urban settings, for example, fire protection and safety depends on the strict adherence to codes and standards. Many of these codes and standards do not exist or are not enforced in the rural/suburban WUI. What's more, even a huge building can be partitioned to control fire and smoke movement using engineering designs that are based on a great deal of research and experience. And, fire can be controlled and evacuation done safely in a single structure.

In the WUI, there are a mix of fuels presented by vegetation and structures, and the fire front is much larger and not contained as it would be in a structure. Further compounding things, quite often, safety is not the prime consideration in rapid community development and expansion. Smalley notes that in the urban setting, confining a fire can be accomplished by restricting the source of fuel to a room or section of building. Similarly, in the interface, fire breaks such as greenbelts, golf courses and natural water barriers help to provide a sense of compartmentalizing or separation.

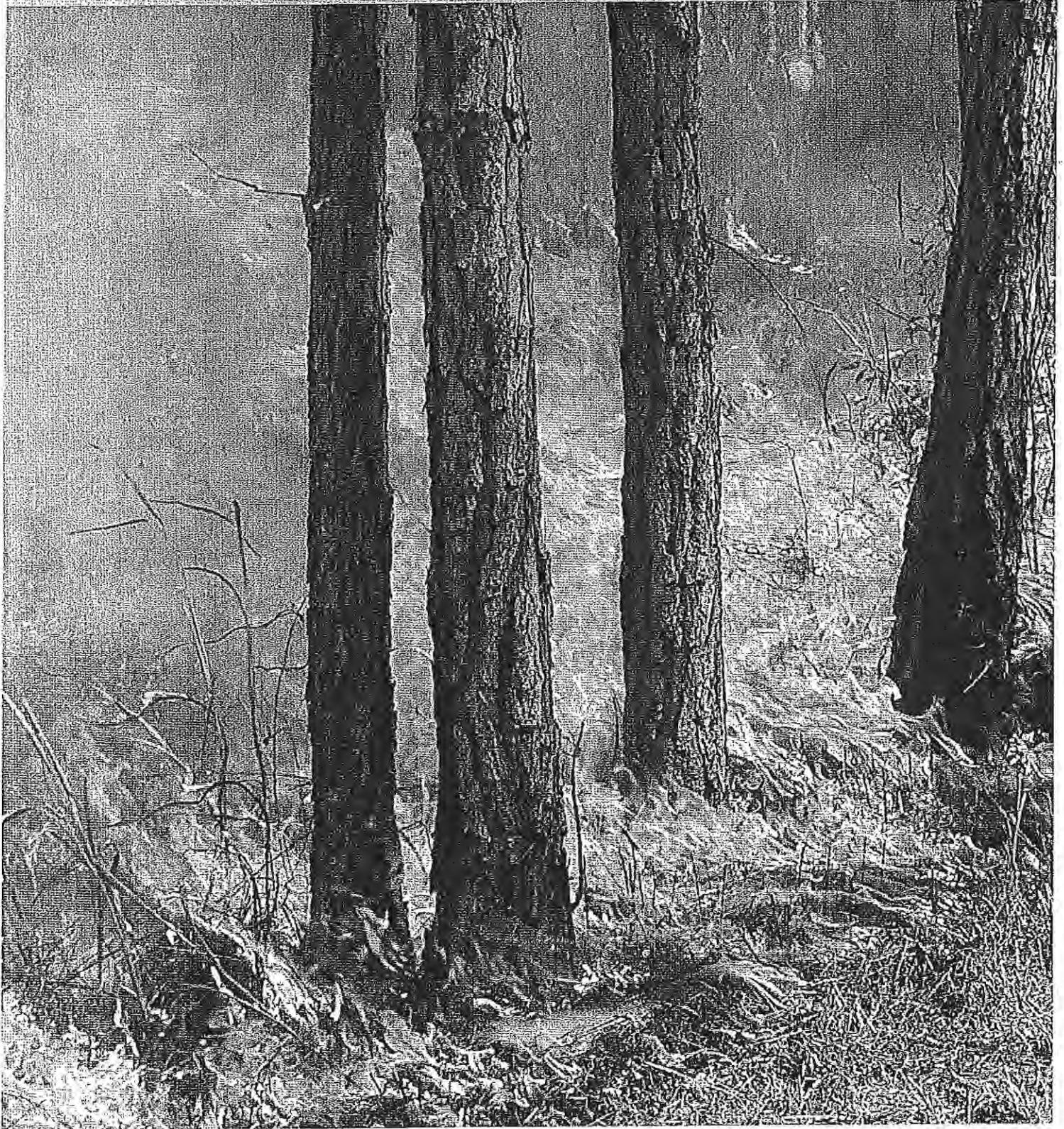
"A big difference is the problem that firebrands pose as a threat to homes in the WUI," he says. "Through Firewise, communities learn how to reduce ignition hazards around homes. "Being in the WUI also requires a process of fire protection that is very dynamic, which depends on the chemistry and physics of fire, as well as the creativity that people bring to solving the problem when more than one option is made available."

Smalley suggests talking to local fire and emergency personnel and leaders can be especially helpful in determining the various options and resources there may be within a community. So, too, can talking to each other. "The essence of the challenge is very similar to the dynamics of starting and sustaining neighborhood watch programs," he says. "When you talk to your neighbors, you learn what your shared hazards and common problems are, you get ideas about how to best address those hazards and problems, and you identify who may need assistance in mitigation."

He adds, "You're also well on your way to becoming recognized as a Firewise Community/USA local. And, if you succeed in that, you'll find, as I have, that working with fire protection professionals and citizens who become active in fire prevention and mitigation is wonderful beyond description."

Karen Gardner is a contributing writer for the Firewise Newsletter and Wildfire News & Notes

Wildfire Planning Strategies For Community Design: A Guide For Southeastern Developers And Planners





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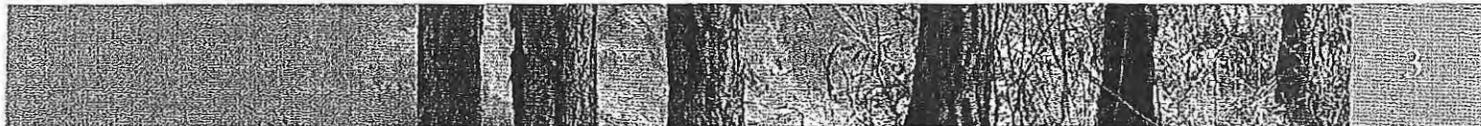
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Wildfire Planning Strategies For Community Design: A Guide For Southeastern Developers And Planners

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1.0 Introduction

Community development is rapidly expanding within many areas of the southeastern United States. Urban centers are being pushed outwards into the surrounding forested and agricultural areas. This zone of new development into rural areas is known as the wildland-urban interface (WUI). The WUI interface has been described as "an area where various structures (most notably private homes) and other human developments meet or are intermingled with forest and other vegetative fuel types" (Kline et al., 2004). Many homeowners often prefer living in wooded landscapes which offer quiet privacy, backyard wildlife, and a direct connection to nature. But with these many benefits comes a few responsibilities to living within the wildland interface, one of which is the occasional risk of wildland fire.

Although dramatic headlines and news footage of significant wildfires in the western United States often captures media attention, the southeast is no stranger to wildfire. The southern pine forest which comprises much of the region is ecologically dependent upon periodic fire. Recent fires in 2007-2008 burned large acreages in Georgia, Virginia, Texas, and South Carolina. The wildfires of 1998 in south central Florida were more extreme, and forced the evacuation of 45,000 people and contributed to the loss of 370 homes and businesses (Florida Division of Emergency Management, 2008). This event changed how cities and developers in Florida design for safer communities from wildfire for residents.

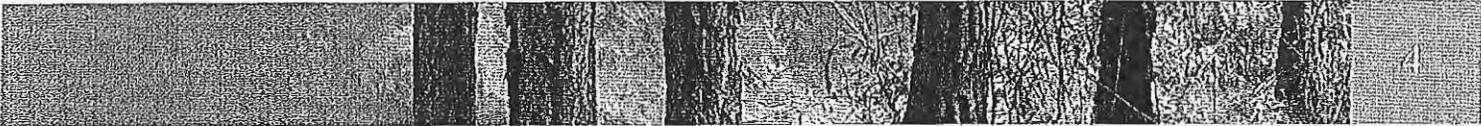
Benefits Of Wildfire Planning For Developers And Planners

Planning for wildfire events is just one part of a comprehensive community planning strategy. Other natural disasters, such as hurricanes, floods, and droughts are not infrequent in the southeastern United States. By proactively designing communities in ways that minimize loss, or providing for more immediate response to these hazards, these developments can be a more sustainable in the face of a natural catastrophe. Comprehensive hazard planning provides other benefits. By creating denser development footprints which reduce urban sprawl, the resulting increase in greenspace provides for more recreational opportunity, wildlife and plant species conservation, enhanced carbon sequestration, and opportunities for the creation of

wildfire buffer zones. U.S. EPA Tier II regulations will require new developments ensure that stormwater is not degrading the quality of nearby waterbodies. The provision of greenspace, and its location in community development provides for enhanced water infiltration and water runoff quality, and if managed properly also serves as a wildfire buffer.

Using This Guide

This guide provides information and development considerations for planners and builders within the southeastern United States. While there is a wealth of information already publicly available through Firewise® (Firewise, 2008) and the National Fire Protection Association (NFPA, 2008) concerning architectural standards, landscape and buffer zone requirements, and codes and regulations, there are few publications concerning the organization and placement of land use elements in developments to minimize external ground fire damage. Due to the interaction of fire behavior and severe weather conditions, even with the best of defensible planning measures there is no guarantee of protection from wildfire damage. However, it has been demonstrated in numerous fire events that proper wildfire planning measures have actually saved structures from the impacts of advancing ground fires. Depending upon the location of the community development, weather conditions, topographical features, and surrounding forest fuel load, it is wise to utilize multiple planning strategies to maximize defensible space. This guide provides case studies of fire impacted communities in the southeastern U.S., subdivisions designed with fire safety provisions, and examples of buffer zone strategies that have been effective in various fire events. While many included examples are from the western United States, these land use recommendations are applicable to the southeast region.



2.0 Living with Fire

A persistent issue regarding development in rural areas is the occasional risk of wildfire. Pyne (2001) points out that "we are truly a species touched by fire" and that "every place humans visited they touched with fire." Our ancestors controlled and utilized fire to manipulate their environment and in turn aided the course of human evolution. This use of fire in turn furthered the spread of fire-adapted ecosystems. This anthropogenic fire regime, in competition with lightning-caused fire, remained in place in much of the world until the Enlightenment (Pyne, 2001). In the U.S., by the mid-19th century, the use of fire to manipulate the land decreased as the concerns about conservation became more prevalent (Sorvig, 2001). As a result of this change in philosophy, many landscape level fire regimes were altered. In many cases, the fire-prone (starved) landscapes we see today, including the WUI, resulted from our removing anthropogenic fire and changing the fire regime (Brose et al., 2001). Wildfire risks associated with the WUI are the result of many factors; however, the change in fire regime cannot be over estimated. As the urban, suburban, and rural fringe (exurbs) continue to merge this increases the WUI. This diverse mosaic makes more the potential for wildfire damage. There are many challenges, risks, and rewards associated with development in the WUI. The increased demand of building and habitation in these areas is largely spawned from exurban populations seeking a rural woody escape (Monroe et al., 2003; Kline et al., 2004). In planning terms, this is concurrent with sprawl. While there is no standard definition of sprawl, the Vermont Forum on Sprawl defines this type of development as "dispersed development outside of compact urban and village centers along highways and in rural countryside."

3.0 Values of Wildfire Planning

The reduction of wildfire risk is a high priority focus for many communities, state and federal agencies across the Nation. As our Nation's urban cores continue to expand outward from populated centers, numbers of homes and subdivisions infringing upon rural and forested areas are rapidly increasing. Seventeen percent of the U.S. population (56.1 million) lives in non-metropolitan areas that comprise 80% of the total land area. The southern states (USDA Forest Service Region 8

is comprised of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia) contain the fastest growing areas in the U.S. and this region is projected to reach 114 million people by the year 2020 (Cordell and Macie, 2002). The population growth of rural southern counties grew by 7.5% in the 1990's, and this trend is projected to rise on average to 11.5%.

As the population demographics in the South continue to change, the use of prescribed fire is anticipated to become more difficult to utilize and will result in heavier fuel buildups (Southern Group of State Foresters, 2003). Forestry and forestry-related industries comprise the major landholdings in the South (214 million acres), and the USDA Forest Service Region 8 leads the Nation in the number of wildland fires that occur each year. In 2006, 48,000 fires burned over 2.6 million acres in the Southern region. Suppression of wildland fires typically fall upon local fire departments. Due to excessive vegetative fuel buildups from changing land use, fragmentation, sprawl, and additional population densities, wildland fire can sometimes exceed the capabilities of local fire resources (Southern Group of State Foresters, 2003).

Additional factors that may compound future wildfire frequency and intensity are rising annual temperatures. The South's climate is directly impacted by Pacific Ocean El Nino and La Nina temperature fluctuations. In the El Nino cycle the southeastern United States is typically warmer and drier, resulting in drier vegetative fuels. As recently shown in the western states, increasing temperatures are responsible for increased duration and intensity of wildfire seasons (Running, 2006). Increasing annual temperatures are projected for the eastern United States.

4.0 Firewise and regulatory wildfire codes

The fire season of 2000 was one of the worst in U.S. history in 50 years, and more than \$2 billion in federal funds were spent suppressing wildland fires. As a result, the National Fire Plan was borne in Congress through a FY 2001 Appropriations Act. The Act directed that state and federal agencies address the wildland fire problem through hazardous fuels reduction as well as habitat restoration.

4.1 Firewise

As a result of the National Fire Plan, the National Wildfire Coordinating Group was formed from multiple agencies including the USDA Forest Service, the Department of the Interior, the National Association of State Foresters, the U.S. Fire Administration and the National Fire Protection Association. This interagency group prioritized public education and wildfire awareness with Firewise, a program that offers public workshops, instructional media, and accessible resources for landowners, professional planners, researchers, fire agencies, community leaders, designers, engineers, surveyors and others to minimize fire risks on private and public lands. The Firewise Communities program encourages homeowners and developers to incorporate methods and techniques in both built and undeveloped lands to minimize wildfire damage should it occur. Recommendations developed include land management techniques such as

reducing potential fire fuels around residences, maintaining healthy and well irrigated landscapes, selecting plants and building materials that are not fire prone, and incorporating fire breaks and equipment corridors around structures. An extensive library of resources and information on home protection and community programs is available at <http://www.firewise.org/>.

4.2 Model wildfire code ordinances

Communities are increasingly adopting or strengthening wildland fire ordinances to minimize wildfire damage. The majority of community wildland codes address 1) vegetative fuel clearance around structures, 2) vegetative maintenance, and 3) vehicular access requirements. Primarily, these fire codes and ordinances attempt to reduce damage and the risk of possible injury for homeowners and firefighters in the WUI. Homeowners will better accept community ordinances if there is a high perception of risk and awareness (Gardener et al., 1987). Regulations directed toward development in fire risk areas do not guarantee a community will be free from fire risk, but may reduce the potential for damage. Advantages to implementing wildfire regulations in developments are many, as are the methods for establishing priorities. Wildfire mitigation

may occur in the regulations for new and existing developments, in the development review process, in zoning, covenant or deed restrictions, requirements for fuel modification in high risk zones, and building and construction standards. Disadvantages to wildfire regulations include potentially higher construction and maintenance costs for homeowners or associations, resistance to adopting regulations by homeowners, possibility of conflict with existing tree or natural resource ordinances, monitoring, administration and enforcement costs, and lack of guarantees that proper maintenance will be kept in the absence of administration and enforcement.

A methodology on how to develop systems and tools to assess fire hazards was published by the National Wildland/Urban Interface Fire Protection Program in 1997 and revised by the National Firewise Communities Program in 2005 to reflect the relationships between

Community Wildfire Protection Plans, Firewise Communities® planning, and hazard reduction considerations for the home ignition zone. This method organizes the hazard assessment process into a series of steps that include: 1) selection of areas to be evaluated, 2) hazard components to be considered in the assessment, 3) ranking of hazard components, and 4) compilation of hazard rankings into a usable format.

4.2.1 NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire, 2008 edition

Specific ranking information for landscape and structural features was established through NFPA 1144 Standard for Protecting Life and Property from Wildfire, 2002 edition and previous. Responding to the research and needed focus on preventing WUI disasters in which hundreds of homes are often destroyed or damaged, the NFPA Technical Committee for Forest and Rural Fire Protection revised the document to reflect the approach offered by the National Firewise Communities Program. The new document entitled NFPA 1144 Standard for Reducing Structure Ignition Hazards from Wildland Fire, 2008 edition (National Fire Protection Association, 2008), includes a procedure and details to assess hazards around



existing homes in interface areas and design criteria for new homes. Also included are suggested mitigation measures, based on Firewise concepts that might be offered to residents.

NFPA 1411 Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas, 2008 edition. Likewise, the NFPA Technical Committee revised this document to include the infrastructure elements from NFPA 1144 (2002 edition) because they recognized that the objective should be preventing ignition of structures and that water supplies, road width, and street signage were suppression issues and have little or nothing to do with preventing ignitions. The standard outlines the essential requirements for land use conversion that results in community design and development, including road widths and emergency vehicle accessibility, water supplies, topography, construction materials, and available fire protection strategies.



4.2.2 The International Urban-Wildland Interface Code™

The International Code Council, Inc. (ICC) produced the International Urban-Wildland Interface Code® in 2003. The ICC is a nonprofit organization dedicated to developing single sets of national model construction codes. This ready to adopt wildland-urban interface code is for municipalities and county jurisdictions and bridges the code requirements of the pre-existing International Building Code® and the International Fire Code®. The document provides for the minimum regulations for land use and development in wildland-urban areas. It covers the administration and authority of government, definitions, special building construction regulations, fire-protection requirements, and general requirements.

4.2.3 Florida codes

While the state of Florida does not have a statewide urban-wildland public law, a model ordinance for local communities has been developed through the Florida Department of Community Affairs (FDCA) and the Florida Department of Agriculture and Consumer Services. Wildfire Mitigation in Florida is a comprehensive document for regional communities on land use planning strategies and best development practices in wildland-urban zones.

Counties and municipalities are required through a Florida Statute (Section 163.3167) to produce a Local Government Comprehensive Plan to guide their future development and growth. The plan gives counties and local governments the power to develop guidelines for a balanced future growth and designate the proposed locations for various land uses. Portions of the statute require protection of wetlands and other natural resources, and encourage the protection of residents from wildfire, hurricane, or other natural disasters; including all necessary features for protection such as development and road standards. However, unless plans are made policy, are reflected in local codes and zoning maps and ordinances, and are administered and enforced they are likely to have little if any real effect in achieving the stated goals and objectives of the plan.

5.0 Wildfire code provisions

The authors have previously examined nationwide municipal and county wildland fire codes containing provisions for landscape features and summarized their general requirements for new or existing development (Brzuszek and Walker, 2008). This research revealed 12 ordinance provisions that fall into four categories of vegetative fuel clearance, building requirements, roadway and driveway standards, and planning and assessment. The following is a discussion of these four elements.

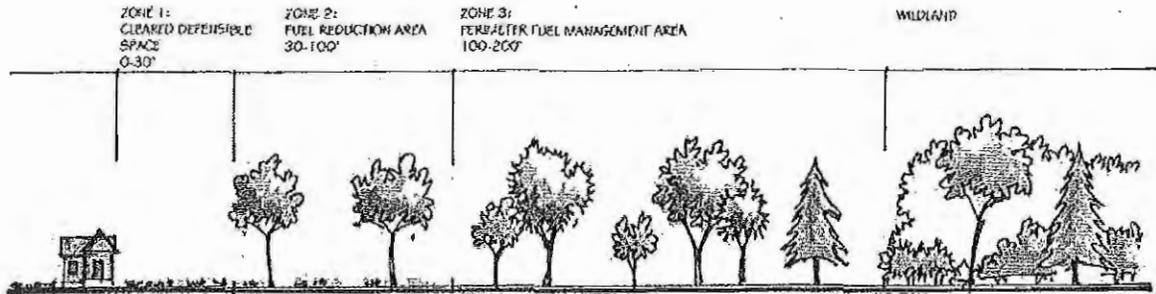
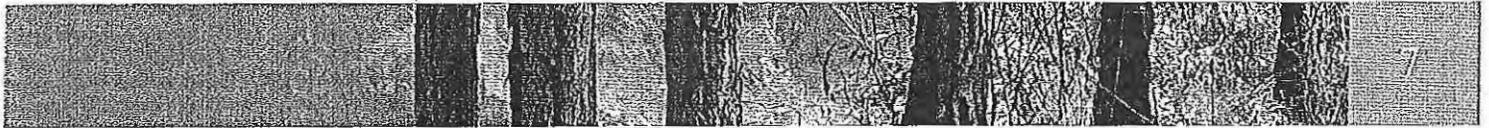


Figure 1. Wildfire mitigation zones around structures include zones of managed vegetation, fuel reduction and transition areas (Illustration redrawn by Marc Foster).

5.1 Vegetative fuel clearance

A major provision of many ordinances concerns the distance between heavy vegetation types and the proposed or existing structures. These distances coincide with what firefighters term "defensible space," that is the space that creates a fire break between fuels (between vegetation and structure) and allows firefighters room to effectively fight an oncoming wildfire. Defensible space usually includes multiple zones for fuel modification, ranging from clearing flammable materials immediately surrounding a residence, to measures to protect zones that surround an entire subdivision. Most codes identify a gradient of two or three zones with unique provisions for the establishment and management of these defensible areas.

The zone immediately adjacent to a dwelling is the area of maximum fuel modification and management, and typically extends 30 feet from the structure. The purpose is to reduce the spread of an external fire by limiting the height or spacing of vegetation. Ultimately this regulation would affect any planting plan. High Fire Hazard Area Landscape Guidelines from the City of Santa Barbara, California are based upon the Uniform Fire Code. The code recommends that in Zone 1 (0-30 feet from structures) "Plants should be low growing, irrigated plants. Focus should be on ground covers not more than 12 inches in height or succulents. Use non-flammable materials for paths, patios, and mulch" (Santa Barbara City Fire Department, 2001). This document also lists plants to remove or avoid using in landscape zones because they are more flammable. These include pampas grass (*Cortaderia* sp.), cypress (*Cupressus* sp.), eucalyptus (*Eucalyptus* sp.), fountain grass (*Pennisetum* sp.),

and pine (*Pinus* sp.). Many state fire or cooperative agencies offer a recommended Firewise plant list for their area.

The second zone is a transition area to any adjacent woodland. This zone is managed for fuels between the woodland and a structure regardless of property ownership. The extent ranges from 30 to 100 feet; however, in high risk areas the distance may increase beyond 100 feet. In this zone, the edges of tree crowns should typically be separated by 10 feet or more. The 10-foot crown spacing is acceptable on slopes between 0-10%. However, as slope increases, the spacing between tree crowns increases to as much as 30 feet on slopes exceeding 40 % (Eagle County, 2004).

Although ordinances often include these two vegetative modification zones, provisions for the establishment and management of each zone varies. However, the different fuel modification codes share many commonalities including pruning, thinning, and removal of trees, shrubs, and grasses to successfully "fragment" ground and crown fires as they move across a site. Shrubs underneath trees serve as a fire "ladder," where fire spreads into tree crowns from a ground source (e.g., shrubs and low tree branches). Trees may also require pruning (limbing-up) to achieve the same purpose. Additionally, spacing between tree crowns determines the need for pruning or removal to manage a crown fire. Most codes set a minimum distance between tree crowns, usually measured from the edge of the crown to branches of adjacent trees.

In conjunction with codes regulating vegetation fuel clearance, vegetative maintenance is critical for managing dangerous fuel loads in high



5.4 Planning and assessment

Greenbelts are essentially an extension of defensible space with the primary difference being scale. While defensible space often refers to zones within a single property boundary, greenbelts are usually part of a development plan for subdivisions or developments. Greenbelts separate wildland fuels and inhabitable structures. Locating greenbelts involves a thorough understanding of the site and fire behavior, and they must be strategically located to aid in preventing a wildfire from spreading into a residential area. When the area around a single property cannot ensure adequate defensible space, due to a site constraint such as steep topography, requiring a greenbelt is particularly justified. Greenbelts also provide the community with open space for recreation. They might include golf courses, parks, and playgrounds.

Typically, hazard assessments are only required for proposed developments or subdivisions. In the wildfire hazard areas identified, the assessment report must prove that the developer adequately met criteria for reducing or eliminating wildfire hazards at the time of initial development. In most cases, a qualified professional forester must prepare these plans or reports. State and local planning authorities may also have to address conflicting requirements between "firewise" requirements and conservation provisions in codes and laws, such as forest retention requirements.



Figure 4. Example of a managed greenbelt area (Photo: Bob Brzuszek).

6.0 Case studies of Florida wildfire problems in developments

Protection from wildfire was just one part of an overall regional natural hazard strategy. There was an opportunity for planners to better understand their role in a WUI fire by examining a few case studies of fire damaged communities. Whether planners and builders were involved in the original planning process for these communities or for individual residences; conclusions generated by investigations into these catastrophic events point to areas that planners can best contribute their expertise. The following case studies center on the 1998 Florida wildfires in Flagler, Volusia, and Brevard Counties, with descriptions of how they met community edges.

Florida East Coast Fires 1998

Overview:

In late June 1998 several wildfires began in the area inland of Florida's east coast. These fires spread east rapidly, powered by frontal circulation

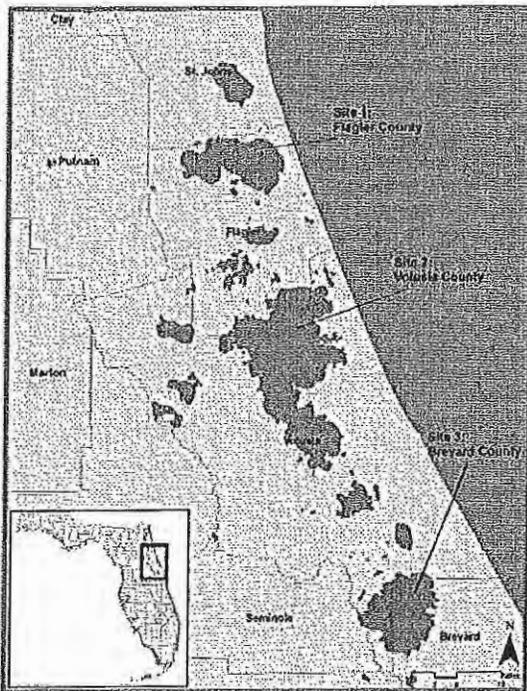


Figure 5. Overview of primary concentration of east coast fires, with selection of three case study fire sites affecting residential areas.

winds and assisted by unseasonably dry conditions resulting from the El Nino oscillation. The fires began to rapidly spread toward the populated East Coast on July 1, crossing multiple road rights of way in excess of 100 feet. The advance continued until July 4, when increased humidity and decreased winds slowed the fires' advance. Rainfall began on July 5 and the fires were brought under control. The final wrap-up work of fully extinguishing the fires took another two weeks.

6.1 Site 1: Flagler County Fire

Overview:

This fire began in rural Flagler County in late June and spread east, powered by frontal circulation winds. Over a period of approximately two weeks, the fire spread approximately 14 miles and affected over 41,500 acres. Almost 94% of this area was in Flagler County, with the remainder of the fire extending northwards into southern St. Johns County. Fifty-one buildings were destroyed by the fire, with more than 45,000 residents temporarily displaced during a mandatory evacuation on July 3.

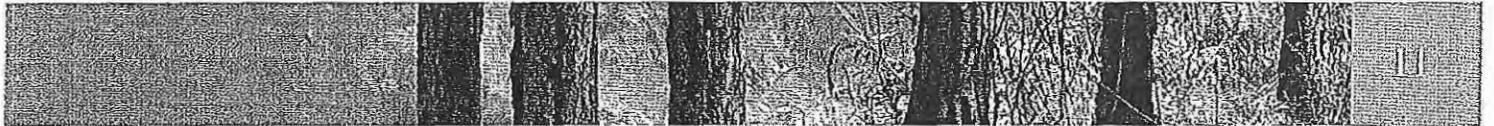
General Landscape Patterns:

The western two-thirds of Site 1 is a mix of upland and wetland forest, with small amounts of cleared or developed areas. Transportation infrastructure was very limited and there was a large roadless area directly west of Palm Coast, between the city and San Mateos. The fire began near the western edge of this roadless area and burned eastwards for up to 10 miles before major roadways and the outskirts of Palm Coast were reached.

There was a network of wetland forests between the starting point for this site and Palm Coast. These wetlands were long, narrow features oriented north-south, perpendicular to the direction of fire travel.

Defensible zones and controls:

The fire crossed four major defensible zones: a 270-foot rights of way, a 180-foot rights of way, the 130-foot U.S. Highway 1 rights of way, and the 180-foot Interstate 95 corridor. Additionally, many other smaller roads, a railway and other potential defensible zones were crossed both before and after the fire entered the populated portion of Flagler County.



Zone Name	Width	Surface	Mobility	Fire Travel
Utility rights of way	270 feet	Grass/Herbaceous	Cleared off-road	10-13 miles beyond
Utility rights of way	180 feet	Grass/Herbaceous	Cleared off-road	8-10 miles beyond
I-95	180 feet	Paved	Roads	2-4 miles beyond
US-1	130 feet	Paved	Roads	0-1.4 miles beyond

Successful defense was implemented along portions of the I-95 corridor, in residential subdivision areas which had implemented fuel reduction controls, and along smaller roadways in areas with relatively more dense (greater than 2 units/acre) development.

Correlating factors relative to successful fire defense:

1. Successful fire defense occurred at or near areas of transition from low-density residential /suburban type land-use patterns to medium and higher-density development.
2. Presence of marsh (emergent wetland types) and open water were associated with fire boundaries. This was in contrast to forested wetland types (see Non-correlating factors below).
3. Increased road density was associated with fire boundaries.

Non-correlating factors to successful fire defense:

1. Low-density residential/suburban areas adjacent to forest areas were often not successfully defended. The majority of this type of area was residential development adjacent to the large roadless areas mentioned above. Lower-density

development suffered greater exposure to and damage from fire.

2. The presence of forested wetlands was not associated with successful fire defense. There are multiple lines of forested wetlands crossing the site. The majority of these run perpendicular to the vectors of fire movement. It appeared that forested wetland areas in drought conditions are not effective as defensible zones or slowing/ fragmenting influences relative to wildfire travel.
3. The presence of scrub areas was also not associated with successful fire defense. There are few areas mapped as scrub within this site. Scrub accounts for only approximately 2% of the total site area, with no areas larger than 80 acres.
4. Single, large defensible zones were often breached by this fire. The largest defensible zones within Site 1 were all crossed. In the case of the I-95 and US-1 zones, the fire traveled substantial (> 1 mile) average distance after crossing these zones and moving into new territory.

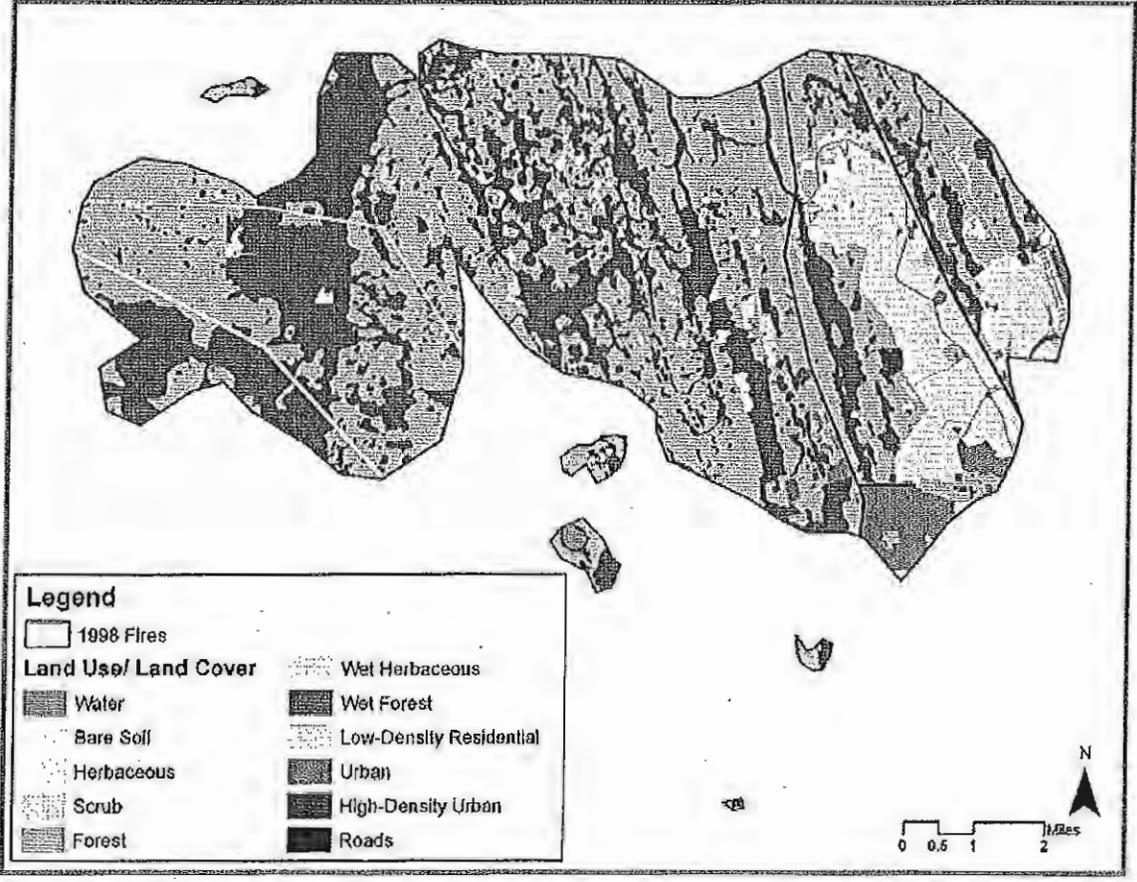


Figure 6: Case study site 1: Flagler/ St. Johns Counties fire. 1995 land use/ land cover data grouped into categories by Florida Land Use, Land Cover Classification System (FLUCCS) codes.

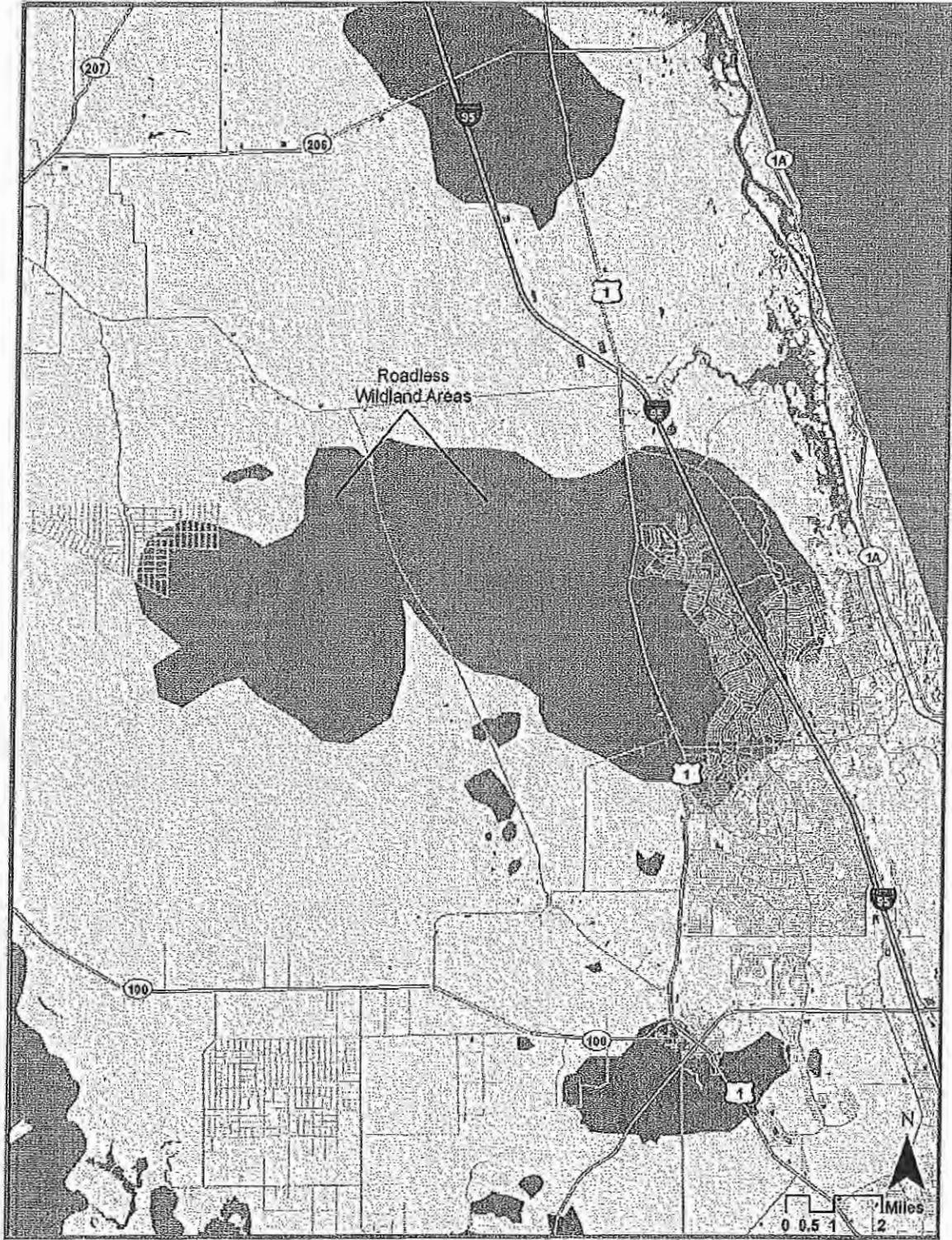


Figure 7: Roadless areas where Site 1 fire developed prior to affecting the Palm Coast community.



6.2 Site 2: Volusia County Fire

Overview:

This fire spread along an almost 26-mile north-south length of Volusia and Flagler Counties. The east-west width of the affected area ranged from approximately 2.5 miles at the narrowest point to 17 miles at the widest expanse. Over 122,000 acres of land were affected. Over 77% of this area was in Volusia County, with the remainder of the fire extending northwards into southern Flagler County.

General landscape patterns:

As with Site 1, the fires began in wildlands to the west of the developed coastline area. Large, virtually roadless areas to the west of Ormond Beach and Daytona Beach were affected first by fire, which traveled east as it burned through a mixture of upland forests with some areas of scrub and forested wetlands. Almost the entirety of Site 2 is forested area with no major north-south roadways and only 3 east-west roadways along the long axis of this site. The fire began near the western edge of this roadless area and burned eastwards for 7-12 miles before major roadways and the outskirts of Ormond Beach were reached.

Defensible zones and controls:

The fire crossed three major defensible zones: a 300-foot utility rights of way, a 200-foot utility rights of way, and the 180-foot Interstate 95 corridor. Few other potential defensible zones were crossed after the fire entered the populated portion of this site. Approximately 5000 acres were burned on the east side of the I-95 corridor.

Successful defense was implemented in wildland areas near I-4, along and near the I-95 and US-1 corridors, and along smaller roadways in areas with low-density (less than 2 units/ acre) development.

Correlating factors relative to successful fire defense:

1. The interface area between forested and low-density residential development was relatively successfully defended in this fire event. Areas where the wildland interface was adjacent to other higher-density urban development were also successfully defended.
2. Large roads were used successfully as defensible zones. Fire travel was very limited beyond the I-95 corridor and the width of the burn path was substantially reduced.
3. Density of east-west roadways. The narrowest area of east-west burn travel is where US-92 and I-4 converge and are approximately 2-3 miles apart. Burn area limits end abruptly even in the middle of forested areas in this portion of the site and do not extend to near developed areas.
4. Increased road density, including smaller neighborhood roads was associated with fire boundaries. Denser transportation networks allow for more precise positioning and fallback zones for fire control personnel.

Non-correlating factors relative to successful fire defense:

1. As with Site 1, areas of transition from forest to low-density residential/suburban type land-use pattern were not very successfully defended.
2. The Tomoka River and associated bottomlands. These riverine open-water areas and forests were crossed by the fire and the burn area extended up to 2.5 miles beyond.
3. Presence of forested wetlands. There are multiple areas of forested wetlands across the site. Many of these are

Zone Name	Width	Surface	Mobility	Fire Travel
Electric Power Line	300 feet	Grass/Herbaceous	Cleared off-road	2.5-10 miles beyond
Electric Power Line	200 feet	Grass/Herbaceous	Cleared off-road	0.3-3 miles beyond
I-95	180 feet	Paved	Roads	0.3-1.8 miles beyond

large irregularly shaped features in contrast to the predominantly long, narrow features in Site 1. It appeared that forested wetland areas were not effective in drought periods as defensible zones or slowing/fragmenting influences relative to wildfire

travel in this instance. The drought conditions present at the time of this fire may have reduced the any effects the wetlands would have had on mitigating fire damage and advance.

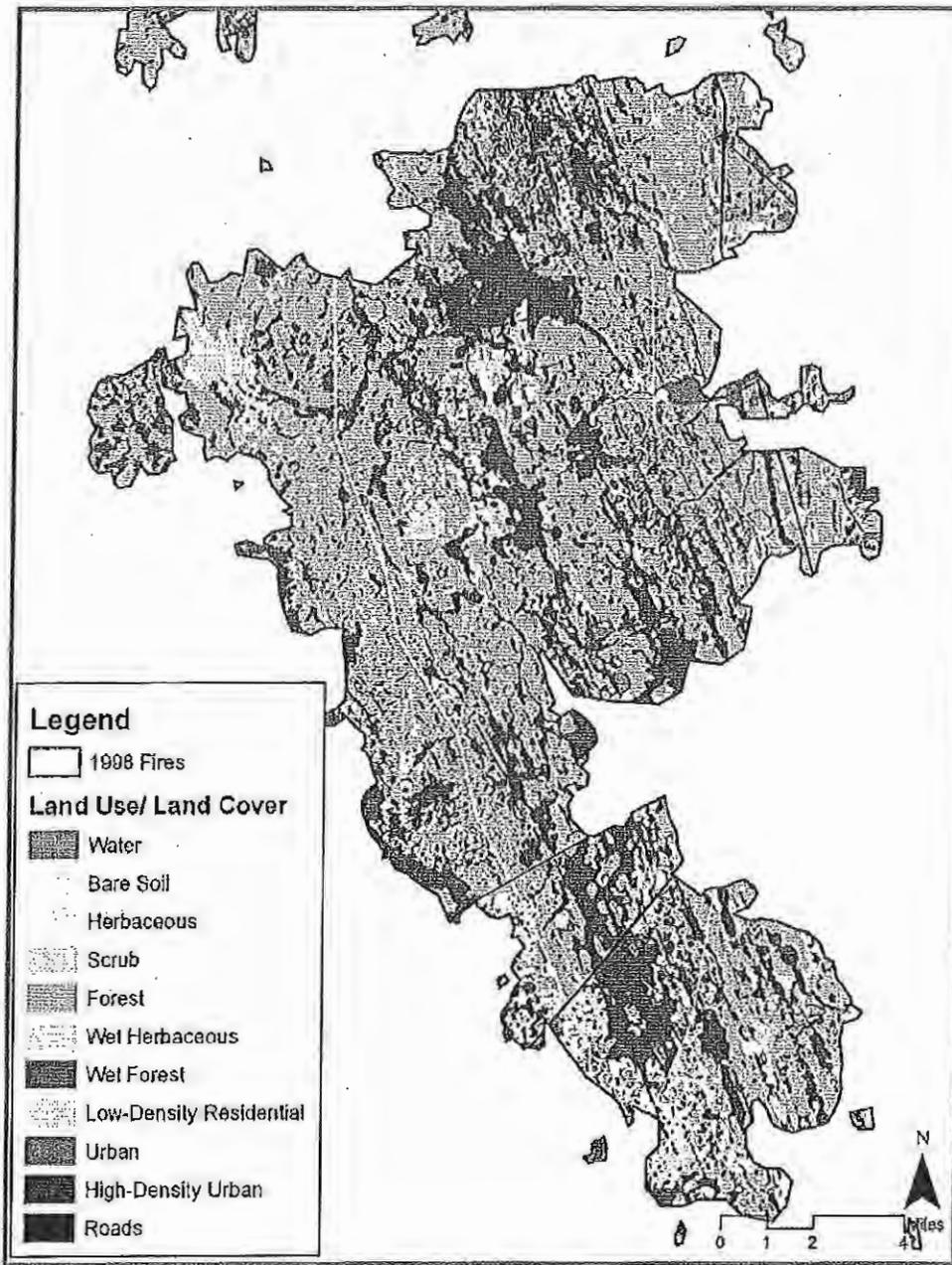


Figure 8: Case study site 2, Volusia County fire : 1995 land use/ land cover data grouped into categories by FLUCCS codes.

6.3 Site 3: Brevard County Fire

Overview:

This fire spread affected a roughly circular area 8 to 10 miles across at the corner of Brevard, Volusia and Seminole Counties. Over 45,000 acres of land were affected. Almost two-thirds of this area was in Brevard County, 33.3% was in Volusia County, and the remaining 0.7% affected Seminole County. A total of 36 residences were impacted.

General landscape patterns:

Like the previous two sites, the fires began in wildlands to the west of the developed coastline area. In this case, the initial affected area was near Lake Harney and was largely comprised of scrub and freshwater marsh areas. As the fire moved east away from the lake and toward the coast there was less marsh and more forest area. Residential areas were affected from near the beginning near Pennichaw in the northwest corner of the site. After moving east from Pennichaw and Lake Harney, there was a large, roadless area extending approximately 6 miles to the I-95 corridor. There was no major north-south or east-west roadways west of I-95 in this site.

Defensible zones and controls:

The fire crossed three major defensible zones: a 160-foot utility rights of way, the 180-foot I-95 corridor, and two small (< 1 mile each) sections of the 100-foot US Highway 1 corridor. Few other potential defensible zones were crossed after the fire reached the I-95 corridor, with only approximately 3000 acres affected on the east side of the I-95 corridor.

Successful defense was implemented along much of the I-95 corridor, along the US-1 corridor in some areas where I-95 was crossed, and in residential subdivision areas, primarily along smaller roadways in areas with relatively less dense (less than 2 units/ acre) development.

Correlating factors relative to successful fire defense:

1. The interface area between forested and low-density residential development was relatively successfully defended in this fire event. Areas where the wildland interface was adjacent to other higher-density urban development were also successfully defended. Large roads were used successfully as defensible zones. Fire travel was very limited beyond the I-95 corridor and the width of the burn path was substantially reduced.
2. Successful defense occurred in areas with increased density of larger roads. Large defensible zones in sequence may have allowed for more effective fire control. In this case the I-95 and US-1 corridors are within 2 miles of each other.
3. There was successful fire defense near waterways and forested wetlands. There is a ditch and wetland system immediately west of the I-95 corridor in the northern half of this site. This may have played a role in the successful defense of this site at and near this area.

Non-correlating factors relative to successful fire defense:

1. Heavy mixing of scrub and low-density residential land-use patterns. The fire ended in areas where low-density subdivision development is immediately adjacent to scrub areas. Very little of this type of land use mixture burned once the fire crossed I-95.
2. There was substantial road access and residential areas near the fire's beginning point near Pennichaw. Despite the fire's accessibility in its early stages, it was not extinguished near the point of origin.

Zone Name	Width	Surface	Mobility	Fire Travel
Electric Power Line	160 feet	Grass/Herbaceous	Cleared off-road	0.5-4.5 miles beyond
I-95	180 feet	Paved	Roads	0.2-1.3 miles beyond
US-1	100 feet	Paved	Roads	0.3 miles beyond

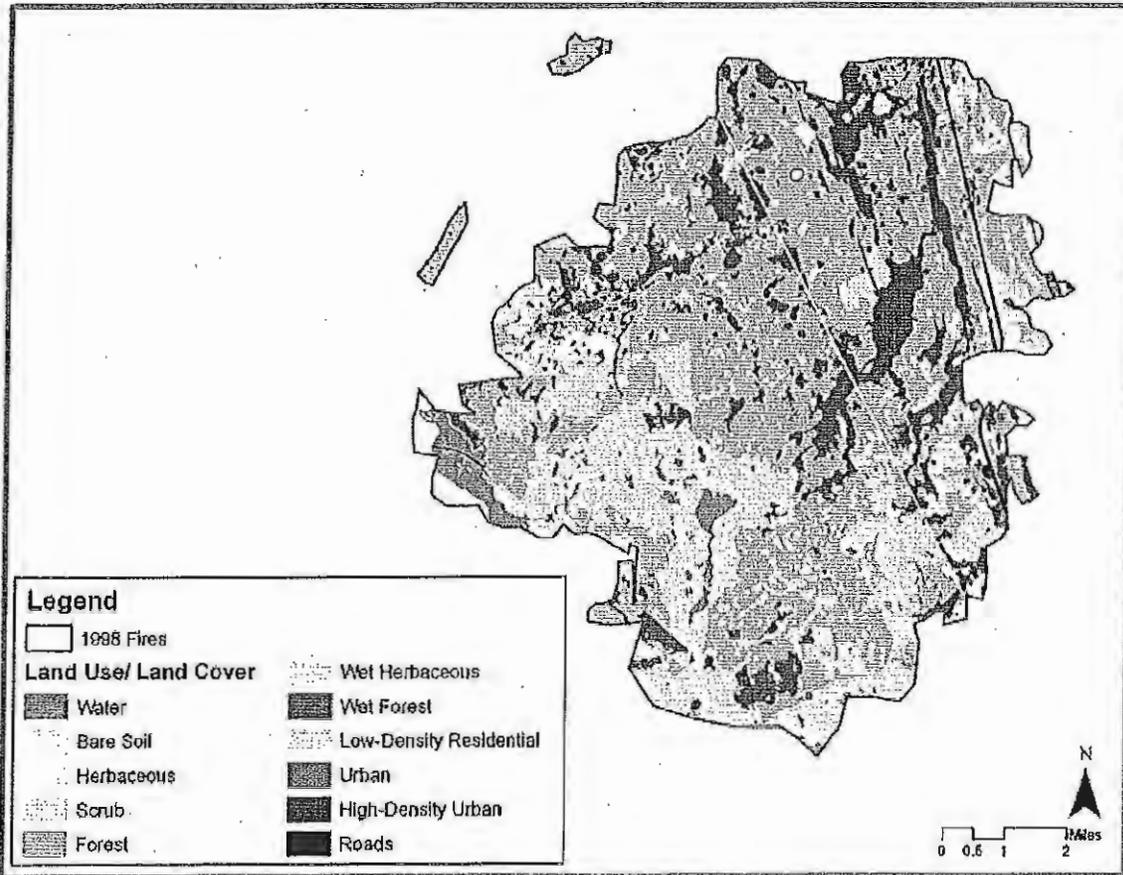


Figure 9 : Case study site 3, Brevard County fire : 1995 land use/ land cover data grouped into categories by FLUCCS codes.

6.4 Summary of Key Conditions and Design Implications of 1998 Florida East Coast Fires

Some key characteristics of the 1998 fires:

1. Severe drought conditions resulting from El Nino Severe drought conditions resulting from El Nino weather patterns. The drought resulted in dry summer thunderstorms with lightning and no rain. Higher than average westerly winds resulting from periodic frontal passage.
2. Ample fuel loads in adjacent wildlands. Typically humidity and precipitation levels are high enough to minimize fire risk in these areas, so fuel management and reduction for these areas was minimal.
3. Weather, fuel and landscape pattern combined to form an excellent environment for firebrand transport and high-intensity fire. Huge areas of dry pine forests to the west, low-density residential development to the east and strong west winds combined to create very intense fires burning through miles of uninterrupted forest then abruptly meeting residential development.
4. Major roads (I-95 and US-1) were crossed, as well as large power line rights of way and many smaller roads.

Conditions supported fires crossing large (100-200 feet wide) road rights of way and cleared utility easements up to 300 feet in width, in addition to covering up to 17 miles of sequential burn distance. The scale of these events was so large that they cannot be fully addressed at the scale of a single subdivision or community. Larger, landscape-level patterns appeared to offer some consistent factors and point toward site-selection and large-scale regional planning as key factors in disaster mitigation under extreme circumstances.

Suggestions for design considerations:

1. Proximity of potential fuel sources, fire-prone habitat types and roadless areas are risk factors in siting communities. All three fires examined had tens of thousands of forested, relatively roadless wildlands adjacent to the sites of affected residential developments. This landscape-level position had a substantial effect on the fire risk of much smaller-scale subdivisions. Examination of fire risk at multiple scales may inform site selection and design processes at the

community or subdivision scale. The identification of risk can also inform the planning decisions as to what areas are appropriate for residential development when creating comprehensive plans, zoning ordinances and other codes, and zoning maps. This information can also inform local planning decisions as to what development patterns (i.e. dispersed versus clustered or more compact development) are most defensible and resilient.

2. Weather patterns leading to wildfire events may be very different than prevailing seasonal conditions. Periodic weather patterns, especially those associated with higher-intensity winds need to be examined to determine where exposure to fire risk is the greatest. All three fires examined were affected and driven eastwards toward populated areas by frontal passage winds, rather than normal prevailing winds from the south to southeast.
3. Multiple, smaller defensible zones may provide the best defense in an intense fire event with severe weather conditions. The largest available defensible zones were crossed in all three of the examined fires, while successful defense was mounted in smaller, residential road and open space networks in subdivisions in Flagler, Volusia and Brevard Counties.
4. Wetlands may not necessarily make a difference. Forested wetlands burned in drought conditions and appear to have carried the fire as quickly as upland forests. All fire areas examined had bands of forested wetlands running perpendicular to the direction of fire travel. These wetlands were not the points of origin for the fires, but were crossed after the fires had built some intensity in drier areas. Open marsh areas may serve as a more effective barrier than wooded wetland types, and the possibility exists for converting wetlands intended as fire barriers from forested to open-canopy or canopy-less habitats immediately adjoining existing structures. Local plans and codes should address the appropriateness of allowing development within, or immediately adjacent to, wooded wetlands.



5. Use cleared easements and rights of way when possible. During the 1998 fires, these areas contributed to successful defense in many areas. Utility easements can provide hundreds of feet of canopy-free space that can be used for perimeter fire defense. Vehicle accessibility is often problematic on these easements, so measures taken to improve access and manage sapling and shrub growth can enhance their effectiveness in fire defense.
6. Incorporate water or emergent wetland features where possible. Canal, river and marsh networks all contributed to successful fire defense in both the Flagler and Brevard County sites. Marsh environments can be built as stormwater controls or created from forested wetlands by canopy reduction. Features having the greatest effect in the 1998 fires were oriented north-south, perpendicular to the direction of fire travel.

7.0 Smart Growth/Low Impact Development

The American Planning Association's Growing SmartSM project recommended that wildfire planning in communities should be part of a larger natural hazards plan that identifies all potential hazards including flooding, wind, storms, or geological conditions (Schwab et al., 2005). In comprehensive community planning, incorporating defensive wildfire measures such as the use and strategic placement of greenbelts that may involve parks, boulevards, playgrounds, recreational or storm retention waterbodies, or golf courses to provide larger measures of protection. Similarly, the location of roadways of sufficient size to accommodate emergency vehicles may also serve as fuel breaks. Proper planning will include multiple egress routes that can be used during emergencies. As Monroe (2002) noted, these planning measures may be difficult to incorporate in established areas or not even considered in the planning phases. By understanding these planning elements as defensible space, planners can better integrate community needs with fire safety. Ultimately, plans should address the fundamental question as to whether or not it is in the interest of public health, safety and welfare to allow further development within fire prone ecosystems, just as plans should address development in areas prone to other highly-predictable risks such as flooding, earthquakes, or landslides.

There are many benefits to comprehensive community planning which include:

- Allowing for an understanding of existing physical, environmental and social conditions.
- Encouraging inventorying and protection of important natural and cultural resources.
- Identifying the potential hazards or limitations for development in certain areas, including wildfire hazards.
- Allowing for future growth projections and infrastructure needs.
- Providing for priorities in the planning and implementation issues of a region.
- Allowing for community input and discussion.
- Balancing multiple planning activities including transportation needs, utilities and management, and economic growth.
- Providing the legal basis for land use recommendations, hazard identification, and local ordinances and policies, and monitoring and enforcement programs.

Many communities across the Nation are concerned about continuation of sprawl growth patterns into rural areas, loss of agricultural and forest land, and wildfire risks in the WUI. While still providing for stronger economic and population growth, concentrating infill development in existing community footprints maximizes current transportation and utility infrastructures, housing opportunities and choices; provides for alternative transportation methods, mixed use development, and revitalized economic stimulus. In essence, these are the principles of Smart Growth. Smart Growth is a comprehensive planning guide that utilizes redevelopment in existing urbanized areas and reduces growth in rural or newly urbanizing lands (American Planning Association, 2002).

Smart Growth utilizes compact building design patterns that reduce the footprint of new construction and impermeable surfaces, allowing developments to preserve more green space. Encouraging the mixed use of taller buildings on less land requires less land for construction and provides cost savings for maintaining roads and other utility infrastructure. The benefits of conserving green space in residential and commercial landscapes are many, and include:

- allowing rain water, building and parking runoff to infiltrate into the ground reducing

- flooding and stormwater drainage needs
- filtering sedimentation and nutrients from runoff reducing water pollution
- providing better opportunities for food, travel and habitat for wildlife species
- providing aesthetic and recreation opportunities for developments
- buffering wind, sun or other climactic effects

States are required by the U.S. Environmental Protection Agency to maintain water quality standards for waters within their jurisdictions under the Federal Water Pollution Control Act. The Water Management Division of Region 4 (southeastern states) utilizes a watershed approach to manage programs. A watershed approach is a framework for management that promotes public and private sector efforts to address priority problems within hydrologically-defined geographic areas, taking into consideration both ground and surface water flow. The Region 4 Water Management Division recognizes the Southeast as a quickly developing area, and recommends sustainable and green infrastructure programs to maintain water quality. Green infrastructure encourages the preservation of existing forests, floodplains and wetlands in developments, as well as agricultural lands. In developed areas, green infrastructure practices to preserve water quality include the implementation of rain gardens, porous pavements, green roofs, infiltration planters, tree boxes, and rainwater harvesting.

In addition to slowing water runoff to allow for better soil infiltration, vegetative buffers also remove pollutants such as soil sediments and excess nutrients (Bolund and Hunhammer, 1999, DeFries et al., 2004). Studies in Pennsylvania have shown that a 6 meter buffer (20 feet) planted in oats can remove 76% of the soil sediments from runoff (Hellmund and Smith, 2006). Similarly, grasslands are effective at nitrogen sequestering, with 24 foot wide vegetative buffers removing 28% excess nitrogen (Bedard-Haughn et al., 2004). Grassland buffers have less vegetative fuel loads than woodland or shrub vegetation types, and cause less severe wildfire control risks. For example, control burns (back burns) are easier to manage than woodland or scrub types.

Utilizing Smart Growth practices to reduce the impervious footprint of developments while conserving green space allows developments to better manage and treat their urban runoff. The preservation and conservation of green space also provides opportunities to create effective wildfire

buffers around developments. Combining green space needs for water quality and fire protection is an easy fit. The outer edge of properties is a critical boundary of the WUI.

8.0 Defensive Land Uses for the Outer Edge

There are three primary categories of how development meets the WUI: 1) the boundary, 2) the intermix, and 3) the island (Schwab and Meck, 2005). These terms refer to the density of building layouts and how they meet woodland fuel types. The boundary refers to a clearly defined development, such as a subdivision, with a dense internal clustering and whose outer edges are adjacent a woodland fuel type. Intermix occurs when structures are scattered intermittently within woodland areas. These isolated properties are preferred by residents who wish to 'be in nature' and offer the most challenges for wildfire protection. An island refers to remnant woodland areas that are bounded and left within a larger developed community, such as a woodlot or natural area within an urban environment.

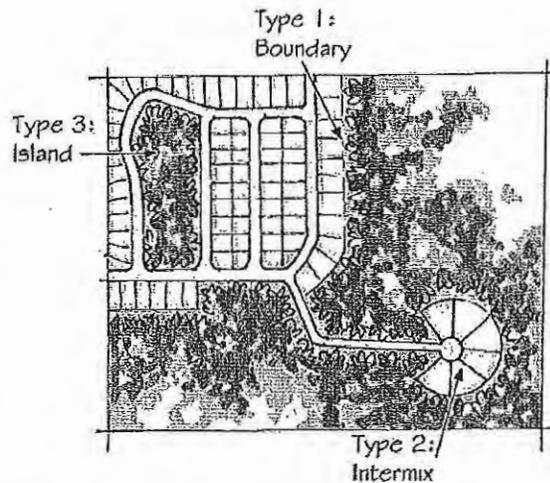


Figure 10. Categories of the wildland-urban interface (Illustration redrawn by Marc Foster, Florida Department of Community Affairs, 2004).

8.1. Greenbelts

Vegetative fuel clearance is the most common management method of creating defensible wildfire barriers. California requires a minimum of 30 feet of managed vegetative fuels from any structure (CA PRC 4291, 2005). For high fire hazard areas, 100 to 200 feet of managed vegetation may be required. Both NFPA 1144 and UWI codes include language for the creation of defensible vegetative zones (NFPA 1144, 2005; ICC, 2003). It should be noted that when such requirements are applied to individual structures within new developments the regulations have the potential to inflate lot size and further exacerbate sprawl. The promotion of compact development patterns that result in buffers around defensible neighborhoods is a better approach not only in terms of reducing sprawl, but also the facilitation of fire defenses as human resources will not have to be scattered to defend myriad stand alone dwellings and other structures. While these codes account for individual structure protection and subdivision standards including minimum road widths for emergency vehicle access, there are relatively few regulatory codes enacted for entire development standards. Although these are general recommended widths, provision for maximum defensible space and multiple protection strategies are best. Severe wildfires under windy conditions have been known to jump fuel clearance zones exceeding 200 feet wide, or may create 'spot' fires, which are burning embers carried by winds across fuel breaks.

Providing greenbelts at the outer edges of developments have been shown to be effective in

preventing or slowing advancing groundfires. Greenbelts are managed vegetated buffer zones between developments and the WUI. The use of greenbelts or parks for fire control is well established, as evidenced in the early 20th century developments of Delaney Park Strip in Anchorage, Alaska; or Hogans Creek parks in Jacksonville, Florida. Greenbelts may include a variety of land uses including ballfield areas, walking trails, golf courses, pastures, parks, cemeteries, reservoirs, agricultural land, and other land uses. These managed lands should be considered in areas that abut forest lands or primary areas from which wildfire danger could travel. Greenbelts can incorporate natural buffer features such as streams or lakes, wetlands (effectiveness dependent upon water level, soil moisture, and other conditions) as well as utility corridors and other managed rights of way.

Establishing greenbelt zones in developing areas may be accomplished through a number of planning vehicles. Transfer of development rights allows landowners to sell or donate their development rights for undeveloped land to a government or organization. Landowners still retain title to the land and can sell it at any time; however the agency retains easement of development. Tax breaks for keeping the land as a conservation area are usually available to landowners. Zoning restriction is another comprehensive approach to area planning, and can specify areas for sensitive land conservation, water quality protection, green space, or fire hazard zones. Zoning can also establish an urban

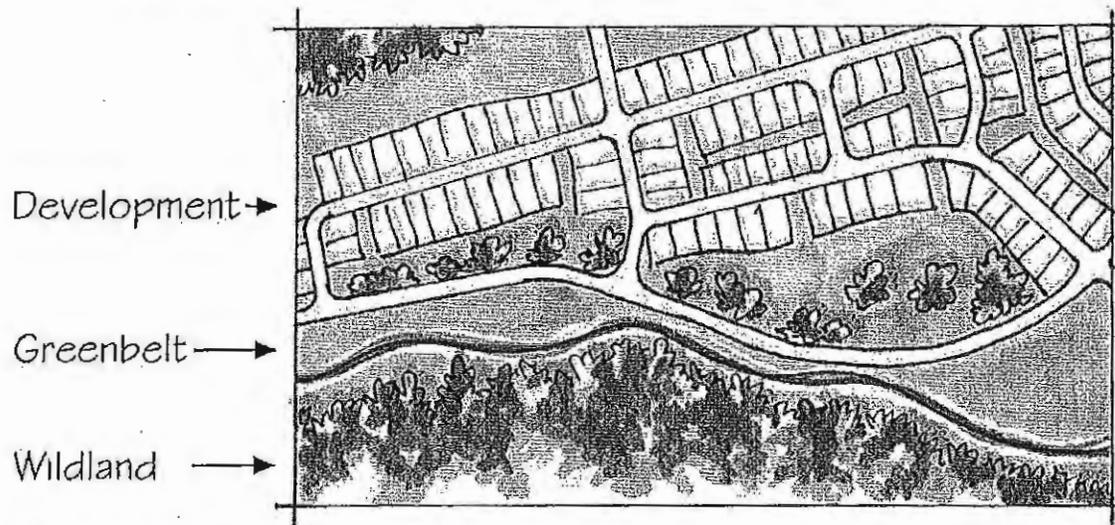
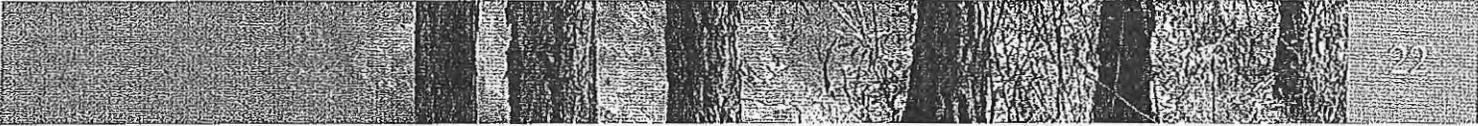


Figure 11. (Illustration by Marc Foster).



growth boundary. Placing restrictions on urban growth footprints can provide incentives to better infill development and reduce urban sprawl. This is likely to be the most effective approach in the reduction of development in fire-prone areas, and is more legally defensible and enforceable.

Stevenson Ranch in Los Angeles County, California was in the direct path of the 2003 Simi fire, and escaped fire damage while surrounding subdivisions were impacted. This planned development was built to Los Angeles building and fire codes and included a 200 foot wide greenbelt around the subdivision. The maintained greenbelt contained irrigation systems and included fire resistant plants. A Federal Emergency Management Agency (FEMA) report on the fire event noted that the outer greenbelt as well as 100 foot greenbelts between homes enhanced fire protection as well as the use of fire resistant plant materials and fire resistant building materials (FEMA, 2007).

Maintained buffer zones are also credited with wildfire saves for The Bridges, The Crosby, Cielo, Santa Fe Valley and 4S Ranch subdivisions in the 2007 Witch Creek fire in San Diego, California (Weisberg et al., 2007). None of the homes in these five subdivisions were lost while surrounding subdivisions suffered severe damage. One hundred feet of thinned vegetation was required around the structures as mandated by regulation. Maintained greenbelts, or vegetative clearance zones, have also been credited with other saves, including the 6,000 home Tahoe Donner subdivision from the 2007 Truckee fire. A prepared firebreak outside of the residential zone slowed the wildfire to allow firefighters to gain control (McCormick and Russell, 2007).

The Shelter Bay community in Skagit County, Washington was identified as a high fire risk community due its proximity to wildland fuels and surrounding landscape features (Titus and Hinderman, 2007). In addition to the residential area, the community included beaches, recreation areas and greenbelts. Greenbelt tracts make up 25% of the community lands and are of varying acreages. Vegetative management and thinning are conducted within these greenbelt tracts, as well as Firewise® plantings providing for a firesafe wildlife habitat enhancement. In addition to greenbelts creating a fuel break from advancing fires, greenbelts can serve as defensive points for firefighters to set backfires (a fire set along the inner edge of a fireline to consume fuel in the path of a wildfire).

8.2 Firebreaks

Permanent firebreaks may be established into greenbelt areas to provide zones of cleared vegetation. In the 2007 southern California fires, firefighters reported that firebreaks that were created using a bulldozer two lanes wide (18 to 20 feet) were effective to slow wildfire advance (ICTR, 2007). The Florida Department of Environmental Protection recommends firebreaks of 12 to 15 feet wide, dependent upon adjacent fire hazards (State of Florida, 1999). While plowed or disked firebreaks can cause soil erosion and water diversion, vegetated or grazed firebreaks may also be used. Vegetated firebreaks were recommended to be at least 10 feet in width, and maintained through occasional mowing (AFC, 2006). After plowing or disking, seeding is implemented using groundcover species that retard fire or provide enhanced wildlife habitat. Grazed firebreaks provide for livestock feeding and are seeded with bahiagrass, grains, ryegrass or legumes. It was recommended for grazed firebreaks to be at minimum of 16 feet in width (AFC, 2006).

8.3 Roads

Both improved and unimproved roadways have been utilized to stop advancing groundfires or for defensive backfiring. While public roadways outside of developments may serve as firebreaks, the location of interior roads may serve as additional protection. Outer perimeter roads are often used in residential subdivisions and their widths and rights of way can serve larger traffic amounts as well as buffer wildfire. Two lane subdivision roads are often specified at 24 feet in width, which is often wide enough to stop a small advancing grassfire. For areas of higher fire risk, mown rights of way along roadsides will add further fuel clearance. For unimproved access roads the Alabama Forestry Commission recommended that access roads serving as a permanent firebreak be at least 10 feet in width with a maximum grade of 10% (AFC, 2006).

Zeph Cunningham of the National Park Service mentioned that during the Quarry and Peavine wildfires, firefighters successfully used the Blue Ridge Parkway as a firebreak to allow wildfires to burn up to the road, or to backfire from it (Cunningham, 2007). While the road rights of way management along the Blue Ridge Parkway varies along the 470 mile long two lane roadway, vegetation management also varies from between 100 and 500 feet from the road centerline.

8.4 Trails and Walkways

Bike and pedestrian trails may also serve as effective fuel breaks. The South Tahoe Greenway Multi-Use Trail Project will link Meyers, California to Stateline, Nevada (Tahoe, 2006). The bike trail provides a non-motorized alternative transportation corridor through South Lake Tahoe. The trail consists of a 10 foot wide paved path with 2 foot wide cleared shoulders on both sides. To serve as a fire break, forest thinning for fuels reduction will occur within 150 feet from the trail centerline.

A new residential community in Florida, Verandah is a 1,456 acre master planned community in Lee County (Section 9.2). In addition to a number of Firewise® design principles, the incorporated nature trails in the development also serve as additional fuel breaks.

The Ortega Road Fire Break in San Juan Capistrano, California serves as a portion of the Mesa Loop Recreation Trail. This 15 foot wide dirt trail runs for five miles along the outer edge of the Ortega Highway, and allows users to experience the area's sage scrub, grassland, and oak woodland plant communities.

8.5 Cemeteries

Cemetery green space has served to stop previous wildfires. In 1991, Mountain View Cemetery in Oakland, California served as a public refuge from the firestorm in the Oakland hills. Evacuees from the fire gathered in the cemetery with their belongings to watch the fire. With the wide expansive cemetery green space and sprinkler systems, the fire stopped at the cemetery edges.

In some cases, cemetery grounds can help preserve original plant community remnants. Prescribed burning is used to maintain an original stand of tallgrass prairie at Prospect Cemetery Nature Preserve in Paxton, Illinois. Regular fire applications are used around the cemetery as additional defensible space. Many cemeteries utilize mown perimeter firebreaks to prevent any cemetery damage.

8.6 Pastures

The 108 Mile Ranch Community Association in British Columbia, Canada is a residential community that comprises over 1500 acres. In addition to community lakes and golf courses, the development contains an exterior greenbelt used for recreational trails and as a firebreak. The greenbelt is managed

for fuel reduction, and also includes extensive horse pastures and an air landing field (108 Mile Ranch, 2008). While pastures may be of various dimensions, they are typically not less than 80 to 100 feet in width, offering a substantial zone of fire protection.

8.7 Airfields

Small landing strips and airfields are amenities provided in some residential subdivisions. For safety and noise reasons, these airstrips are usually located away from main residential areas in the outer greenbelt. Access roads and taxiways at airports make excellent firebreaks. Fifty foot wide mow strips along the edge of runways are not uncommon for small airstrips, which creates a buffer zone exceeding 100 feet in width.

One of the first airparks in the country (1941), the Carmel Valley airport encompasses 25 acres of open space. The airfield served as a firebreak for the surrounding village, and also as an important staging area for fire-fighters and equipment during fire seasons (Vintage Airfield, 2008).

8.8 Utility rights of way and railroads

Utility corridors and railroads can be effective zones for preventing fire spread (NRCS, 2005). Typically these areas are managed for vegetation on a regular basis through the use of prescribed fire, mowing, herbicides or other means. While they may be useful as firebreaks, vegetation management is often conducted along railways to prevent accidental vegetation ignition from the trains. The California Code of Regulations (Title 14) recommends a minimum vegetation control width of 25 feet from railway tracks, which creates nearly 60 feet of wildfire buffer.

8.9 Natural creeks, water bodies, drainage ways

Taking advantage of existing waterways such as creeks, rivers, bays, swamps, and other wetlands as boundaries for developments can be an effective fire break strategy (NRCS, 2005). Similar to other types of fire breaks, the effectiveness of the drainage way depends upon the amount of permanent water within the watershed. Permanent streams at least 15 feet between banks can be effective for stopping small advancing grass fires. Often in riparian corridors the streambank and first terrace vegetation is protected from disturbance,

resulting in older or mature floodplain woodlands. Thick vegetation along streams can transfer fire across small streams, or spot fires can occur from nearby embers.

In the South, seasonal wetlands such as swamps, sloughs, bogs, and floodplains are often saturated with water in winter months, and can be effective fire barriers. In summer, those ephemeral wetlands can dry and become fire prone. As these are ecologically sensitive landscapes, botanists and biologists should first evaluate important plant or wildlife habitats before vegetation management is conducted. Understory thinning, as described below, can help reduce fire risk in wetland areas.

8.10 Shaded fuel breaks

Shaded fuel breaks are areas within woodlands that are thinned or managed to decrease fuel loads. Typically, heavy underbrush (small diameter stems), low limbs, and limb debris up to 8 feet in height are removed which reduces fire intensity and opportunities for crown fires. Generally, closed canopy woodlands have higher humidity levels, lower temperatures, and less wind speeds which helps moderate fire activity, although extreme weather or fire conditions still creates fire danger. Advantages to using woodland shaded fuel breaks include better public acceptance of maintaining forest systems, less occurrence of exotic invasive species becoming established in clearing management, maintaining cooler temperatures on creeks and waterways, and enhanced community use space.

Numerous fire events have proven that shaded fuel breaks can help slow down fire intensity until firefighters can control it. A 1999 wildfire in Winton, California burned 115 acres until the fire reached a shaded fuel break. Fire crews were then able to gain the upperhand before it reached nearby subdivisions. In dense vegetation or high hazard fire areas, fuel breaks of 300 feet in width have been recommended.

Shaded fuel breaks are effective along narrow roadways to expand the defensive zone. A 2003 fire in the Sawmill-Hungry Gulch community east of Bakersfield, California was contained by the prior thinning of roadway vegetation 20 feet on either side of the road.

8.11 Prescribed burn areas

Vegetative buffer zones that are maintained by regularly prescribed fire are also effective ways of mitigating fuel intensity. Grassland fires burn quick and hot, but are of less intensity than dense woodland fires and are easier to control. Maintaining fire management in natural fire ecosystems helps to preserve plant species diversity and certain wildlife populations as well.

A prescribed burn conducted in the Mill Creek Drainage area near Mendocino, California reduced the continuous heavy chaparral and fuel loading. A previous fire in the heavy brush area had burned 26,000 acres and damaged 35 structures. After the prescribed burn, a 2001 fire in the area burned slower and with less intensity and was contained at 10 acres. Tom Crews, USFWS Region 4 Fire Management Officer at Alligator River National Wildlife Refuge in Manteo, North Carolina, relayed that a wildfire in 2000 stopped at a prescribed burn area conducted the previous year. If it were not for the burn management, the main fire could have impacted nearby Manns Harbor Community (Crews, 2008).

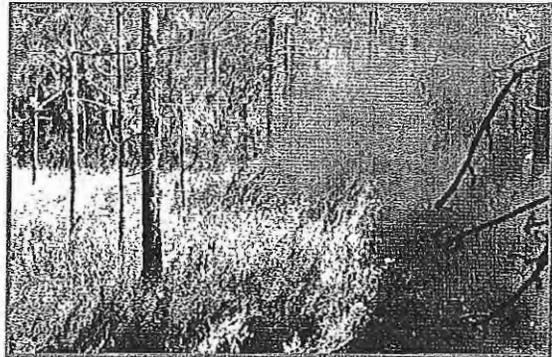


Figure 12 (Photo by Bob Brzuszek).

9.0 Recent planned developments for wildfires

Recently developed planned communities in the southeastern U.S. have utilized and incorporated Firewise® design principles. These Florida case studies describe the general layout decisions and community characteristics.

9.1 CASE STUDY #1

Name: RiverCamps on Crooked Creek
 Location: West Bay, Florida
 Type: Residential community
 Development size: 450 homes, 1500 acres
 Owner: The St. Joe Company

RiverCamps on Crooked Creek was a planned residential community located outside of Panama City Beach, Florida. This new Firewise community (the first Firewise Community/USA® in the Florida panhandle) was located on previously managed forestry lands owned by The St. Joe Company. Comprising 1500 acres, the development retained the character of Gulf Coastal edge salt marsh and slash pine savanna communities. In the early planning phases, canopy trees were thinned in developable areas to 100 trees per acre. The Florida Division of Forestry provided wildfire

suppression and assistance with prescribed fire throughout the stages of development. The design and management of RiverCamps incorporated a variety of Firewise® strategies, including mechanical thinning and prescribed burn management for a variety of natural habitat types.

Community Layout and Design

Much of the developed residential space takes advantage of wildfire protection from the natural or constructed waterways which surround the community. Protected by Crooked Creek to the east, West Bay on the south, and the Intracoastal Waterway to the west, the primary wildfire hazard area from surrounding forest lands is from the north edge of the development.

The north property edge used a tri-level series of fire protection strategies. The main entry

RiverCamps at West Bay

General Plan of Development

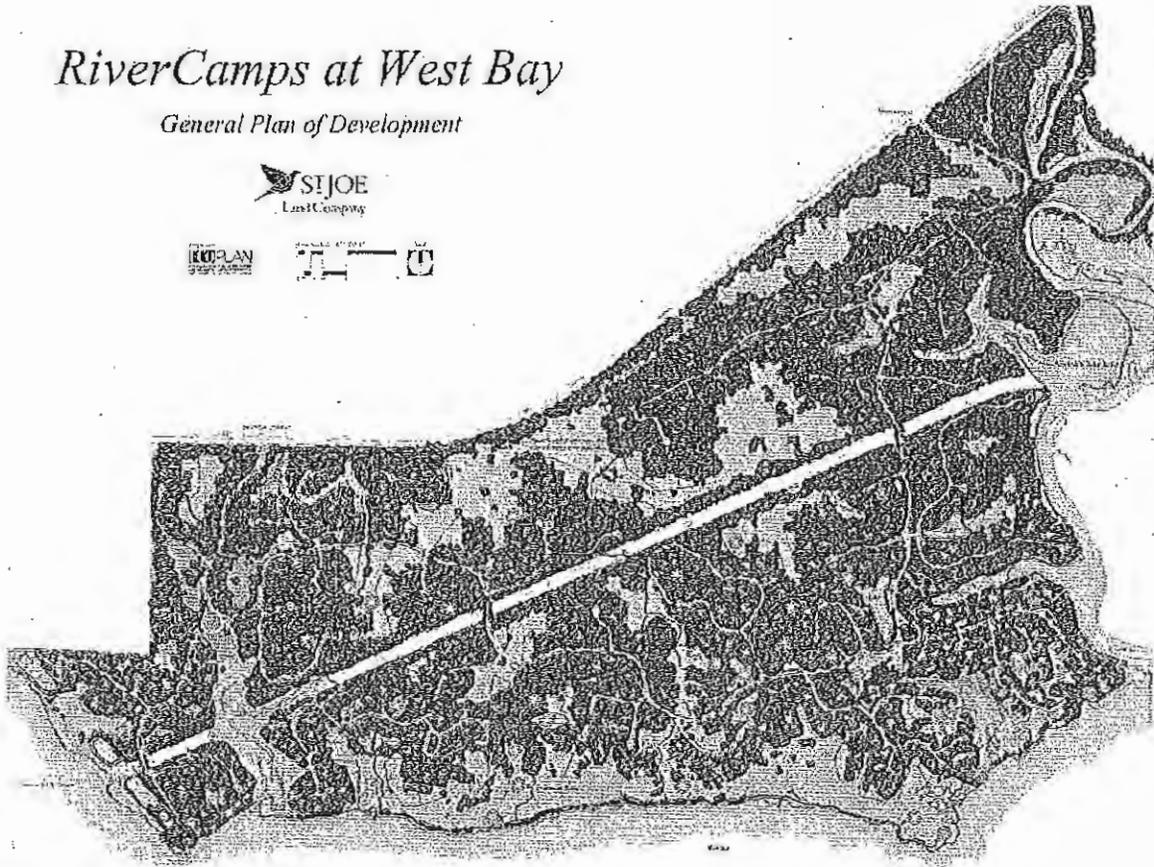
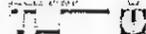


Figure 13. Master plan for RiverCamps near Crooked Creek (Courtesy of The St. Joe Company).

road to the development was from Highway 388, a two lane county road (100 foot R.O.W.) that runs along the entire north edge of RiverCamps on Crooked Creek, and separated the property from forested lands to the north.

The second level of fire protection inside the north edge road came from the designated location of fire managed wet pine savanna community. Entitled the 'grass lakes;' this zone of previous slash pine plantation was thinned of dense pine trees and heavy underbrush to create an open grassy understory. For aesthetic purposes, the width of the open pine savanna varied in width from less than 50' to over several hundred feet in portions. Following the clearing of dense pine stands, the site was rollerchopped and prescribed burned. Burns were scheduled at 2 to 3 year intervals to promote naturally occurring grass and wildflower species. Although permanent firebreaks were added in certain defensive areas, the wetland impacts from those firelines required mitigation.

The third level of wildfire protection came from an existing 200 foot wide powerline rights of way. The Gulf Power line ran east-west along the site, with the majority of development on its southern edge. The area was maintained by Gulf Power by the use of herbicides or by mowing to promote a grassland vegetative buffer. Although prescribed fire is currently used at this time, as housing density increases, fuel management may shift to mechanical cutting in all but the permanent mitigation areas (Smith, 2008). Constructed small lakes were scattered through the development as an amenity for

housing clusters and also serve as small fuel breaks. Twenty foot wide roads circulate through the development, and while they do not create a classic outer ring road, they primarily serve in the same fashion.

Vegetative management

In addition to the above mentioned fire management of pine savanna environments, periodic thinning of overstory trees and underbrush was scheduled for regular management or remaining plant communities. In designated management zones, salt marsh wetlands were scheduled for periodic burning, and seasonal marshes and upland and lowland pine areas were maintained through a combination of hand thinning and burning. The only unmanaged woodlands were conserved along the western edge of Crooked Creek.

Other Firewise® Community Design Characteristics

RiverCamps on Crooked Creek offered other incorporated Firewise design principles. Two entrances for the development to Highway 388 provided multiple safety routes during emergencies and alternative access for traffic distribution. Utilities were placed underground for fire protection, and fire hydrants were placed at 1,000 foot intervals throughout the development. Additionally, homes were constructed from fire resistant construction materials. Educational materials were provided for residents and Firewise demonstration projects are conducted periodically.

9.2 CASE STUDY #2

Name: Verandah
 Name: Verandah
 Location: Fort Myers, Florida
 Type: Residential community
 Development size: 1,456 acres
 Owner: The Bonita Bay Group

Verandah is a master planned residential community located in North Fort Myers, Florida. A recognized Firewise Community/USA® residential area, development was previously a cattle ranch operation prior to opening in 2003. Over 1,400 acres in size, the development was recognized by the Florida Association of Realtors with a Residential Environmental Award for preservation of the area's natural elements. Over 70% of the land was retained for open space; and include nature preserves, parks, lakes and riparian conservation buffers. The development included 480 acres of common space and parks, 416 acres of wetland preserves and lakes, 84 acres of upland preserves, and a 25 to 200 foot wide conservation easement along the Orange River waterfront. Over nine miles of walking and bicycle paths were included in the development, which average four feet in width.

All homes in the development must be certified by the Florida Green Building Coalition which encourages energy efficiency, water conservation, indoor environmental quality, and sustainable building materials. To encourage the use of Florida native plants, 70% of a residence's landscape must contain native species.

Community Layout and Design

Similar to RiverCamps, Verandah takes advantage of surrounding features for wildfire protection. The Orange River bordered the south and west edges of the development, offering protection from scattered woodland patches from the south. The riparian zone of the Orange River varied between 100 and 125 feet in width (Fikowski, 2008). Highway 80, a four lane divided highway, bordered the entire north edge property line. The east edge of the property is bordered by Buckingham Road.

An extensive collection of small lakes and ponds were dispersed throughout the development, which maximized the residential waterfront footage, served as emergency water access, and offers extensive fuel breaks. Also dispersed throughout the development were golf fairways which serve as

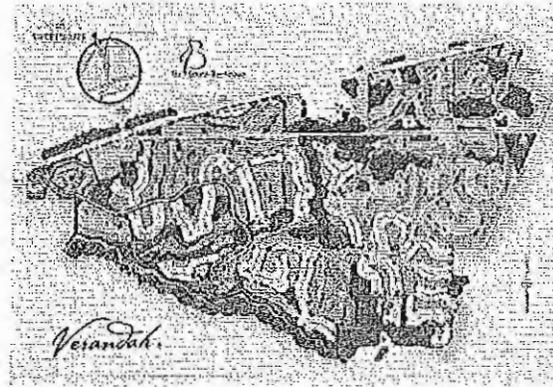


Figure 14. Master plan for Verandah (Courtesy of The Bonita Bay Group).

narrow green corridors between housing clusters. Nature trails were incorporated into the woodland strips throughout the development, which average 4 feet in width and also serve as fuel breaks.

Vegetative management

Many woodlands at Verandah were conserved as natural areas with minimum vegetative management. A Firewise plant list was distributed to homeowners for use on individual as well as community properties.

Other Firewise Community Design Characteristics

Multiple entrances provide access to the development, and interior roads were 25 feet wide with 5 foot shoulders. All roadway turnaround had radii of 50 feet to accommodate large emergency vehicles. Street signs were constructed from non-combustible materials and were a minimum of four inches in diameter. All the utilities were placed underground to minimize storm and fire damage.

9.3 CASE STUDY #3

Name: Briargate
 Location: Ormond Beach, Florida
 Type: Residential community
 Development size: 60 acres, 89 proposed homes

Briargate was a new developing subdivision within the planned community of Hunter's Ridge, located in the western suburbs of Ormond Beach, Florida. Briargate is a recognized Firewise Community/USA® development on 60 acres of land with 89 planned homesites. The Hunter's Ridge subdivision contained a total of 2,280 homesites, situated in pine forests. Hunter's Ridge subdivision was impacted from three separate wildfires during the 1998 wildfire season which consumed nearly 500,000 acres in central Florida. Although the 1998 fires came within 1/4 of a mile from Briargate, the area that Briargate now encompasses was not directly impacted from the 1998 fires, due to utility rights of way located to the west that was used as a defensible zone. The community was designed with Firewise principles in mind, and developers worked with local fire officials and interested home buyers for input as part of a planning committee. The development contained common green space areas of pine forests and hardwood swamps.

Community Layout and Design

Briargate was bordered along its entire north edge by Airport Road, a two lane paved surface with managed rights of way. This was an important defensive element as woodland fuels are located to the north and west sides of the development. Two means of subdivision entry were provided on this road. Bordering the entire west side of Briargate and Hunter's Ridge was a managed 20 foot wide utility line rights of way. The utility rights of way was in a strategic location, as wildland fires typically occur from the west due to predominantly early and mid-day westerly winds (Garrett, 2008). Hunter's Ridge, an extensive subdivision of homes, was located to the south and east portions. An inner loop road, Briargate Look, was a 24 foot wide road that creates an inner ring of protection to homes, as does Thornhill Circle. Briargate, as well as much of Hunter's Ridge, used ponds located in strategic locations to mitigate water runoff as well as provide defensive fire zones. Many of the ponds were oriented in a north/south direction, as were many of the interior Hunter's Ridge development roads, which offered further protection from fires occurring from the west.

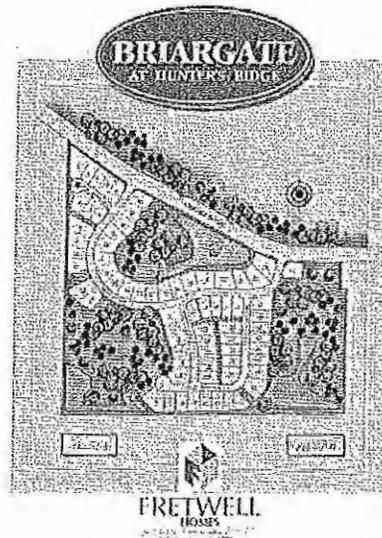


Figure 15. Briargate Community Plan (Courtesy of Fretwell Homes).

Developers of Briargate saw an opportunity to save on expenses associated with site preparation while creating a Firewise community. Briargate, as well as surrounding woodland areas, were thinned of trees to 100 trees per acre, which the developer sold for additional income, as well as being managed for wildland fuels. Additionally, development costs were mitigated by the reuse of soil excavated from the ponds to be reused in the development. The reuse of soil combined with an agreement to extend buildout timelines for multiple lot development saved the developer from a significant expense of hauling the soil offsite.

Vegetative management

Firewise landscaping was required within 30 feet of all structures at Briargate. This includes tree locations at a minimum distance of 30 feet from structures as well as other trees. Fire resistant species were required, as are irrigation systems within the 30 foot zone. Property owners and the association were responsible for the ongoing maintenance of vegetation within the wildfire protection zone. A management plan was required and approved by the city.

Other Firewise Community Design Characteristics

Briargate utilizes a number of Firewise community principles. The community has underground utilities to prevent damage to lines during wildfires and storms, has a million gallon water tank for firefighting, pressurized fire hydrants with rating of 200 gallons per minute, and conducts regular Firewise community meetings.

9.4 Summary of Firewise planned communities

The design and layout of all three case study Firewise design communities revealed similar techniques for incorporating existing fuel breaks and designing maximum managed buffer space around the development. Although these developments have not yet been tested by a wildland fire, the lessons learned from the design of these communities include:

1. Take advantage of existing creeks and waterbodies as property edges for the development where possible. As shown at RiverCamps and Verandah, these riparian buffers form extensive fire breaks for protection, with no cost for installation or management. The location of the main developments at RiverCamps took best advantage of water protection on three sides of the subdivision, as well as providing community amenities. Orange Creek at Verandah also formed a large property buffer for this community. It was not recommended to widen existing perennial streams due to ecologic and hydrologic disruption. Intermittent streams, hardwood swamps or drainage corridors can utilize shaded fuel break strategies of thinning riparian edges to reduce fire hazards in dry seasons or low humidity conditions. Thirty to 100 feet of vegetation management in these zones will reduce the fuel load risk. As shown in the 1998 Flagler fire, existing waterbodies can stop advancing wildfires.
2. Utilize existing roadways along development edges. All three developments wisely utilize major or minor collector roads as a defensive space. As with creeks, these existing firebreaks added no cost to the development or its continued management. A minimum of two lanes width (24 feet) with managed rights of way (minimum 10 feet) was recommended for roadways.
3. Use existing utility corridors as property edge boundaries or as interior defensible space for housing locations. As evidenced in the 1998 wildfire at Hunter's Ridge, managed utility rights of way can be valuable defensible zones. Briargate and RiverCamps took advantage of these existing narrow corridors to locate their developments along the inner edge for further protection.
- Utility rights of way provided additional green space and incorporated into the larger community open space plan. While utility companies typically maintain the rights of way (R.O.W.), communities may provide recommendations for the types of vegetation management and suggested R.O.W. widths. Thirty foot wide corridors were the recommended minimum width for rights of way.
4. Develop new ponds, lakes, wetlands, and other drainage features into the community. All three developments contain newly created waterbodies dispersed throughout the subdivisions. Waterfront properties or community common areas were highly marketable amenities for residential sales, and offer numerous other benefits. Developing retention or detention ponds assist in stormwater management by collecting and treating residential runoff. Ponds also allow for better infiltration into ground aquifers and reduce runoff pollution in local waterbodies. Stormwater ponds may reduce flooding potential in low lying areas, and if managed properly offer additional wetland wildlife habitat. As shown in Hunter's Ridge subdivision, orienting subdivision waterbodies along the width of potential wildfire directions may prove an effective defensive measure. Retention ponds also offer firefighters another source of water in a community during fire operations. A grassland or managed woodland buffer strip (30 feet wide) around water bodies will help trap sediments and filter nutrients before reaching the water body.
5. Consider using outer loop roads within the community property. Briargate's use of 24 foot wide loop roads with managed rights of way offer increasing zones of protection for structures from offsite wildfires. Though not a loop road per se, RiverCamps extensive outer road systems serve the same function. As shown in the 1998 Brevard County, Florida fire, large roads and increased road densities were effective at stopping wildfires.
6. Place managed open space amenities along the outer edge of developments. Verandah's

- use of golf course fairways along the periphery of the development, as well as in the interior of the development, offer a good community use while offering fire protection. RiverCamps extensive pedestrian trail systems act as additional firebreaks in both woodland and savanna areas, and provide access to important amenity use points along the Bay.
7. Provide managed vegetative buffer zones along property edges, especially adjacent off-site wildland fuel areas. Briargate's thinned woodland along the western property edge was an important wildfire fuel mitigation buffer and a community amenity. Having routine management of the woodland buffers was important to include in the community homeowners association covenant. Design and location of the open savanna grassland areas at RiverCamps provided an important buffer from neighboring wildland fuels. The continued use of prescribed fire in this area and thinning of adjacent woodlands were important management goals to reduce wildfire fuel loads.
 8. Maximize the number of Firewise community defensive strategies. All three developments use a number of Firewise design principles that address multiple fire risks, ranging from vegetative management to building and road standards. NFPA 1144, NFPA 1141, and the Wildland Urban Interface Code provide a comprehensive list of factors to consider for developing effective Firewise developments. As shown in the 1998 Florida fires, multiple, smaller defensible zones were effective strategies for stopping wildfires. Firewise development does not guarantee prevention from wildfire damage, but lessens the potential impact or severity through multiple measures.
 9. Create and concentrate high density areas of development instead of low density to minimize the developable footprint. As displayed in the 1998 wildfires in Flagler County, Florida, wildfires stopped at the transition from low density to medium and high density areas. The development and enforcement of plans and ordinances that prevent development in areas known to be at high risk of catastrophic wildfire, or at a minimum that require compact, defensible development, is the best approach to new development.
 10. Catastrophic wildfire prevention is only possible at the regional planning level, and not necessarily at individual site levels. The 1998 Florida fires occurred in large roadless areas of heavy fuels. Fuel management to prevent large wildfires occurred at a large landscape level. As utilized in California, high hazard areas of wildfire risk and other potential natural disasters should be identified in regions. Regional planning allows for the best utilization of transportation, economic development, environmental protection, utility corridor locations, climactic and wind patterns, and site selection for safest developable areas.
 11. Work with local fire officials and community stakeholders in the early planning phases. Cooperation between the Florida Division of Forestry and the developers resulted in an extensive mitigation effort prior to property planning at RiverCamps. The planning advisory board at Briargate included local fire officials, homeowners, and the developer to create strategies for wildfire control and community amenities. The inclusion of community fire officials allowed for variances to development, resulting in significant cost savings.

Summary

Wildfire experts suggest three simple approaches to developing within the WUI: 1) design developments that are easy to defend against wildfire, 2) design fire-resistant landscapes and structures, and 3) design developments that incorporate ongoing fuel reduction treatments to reduce vegetative hazard.

Effective development design steps to reduce fire risk include:

1. For a proposed development area, review existing municipal or county regulatory fire codes.
2. An evaluation of fire risk from surrounding properties and their environments. This may be accomplished by contacting your local fire official for an inspection of the area or your state Firewise coordinator. Identify zones that may need protection that abut vegetative fuel areas and complete a risk



- assessment checklist. Review the history of wildfire occurrence in the area.
3. An identification of zones on the property that will offer possible wildfire protection, including existing roadways, railways, utility rights of way, creeks or drainage features, or cleared areas.
 4. The development of strategies for wildfire protection from possible fire areas. These may include the design and placement of roads with cleared rights of way, or other green space options listed in Section 8. Design multiple ingress and egress roads for developments that accommodate access by large emergency vehicles. An identification of drainage areas on the property and location of open green space in these areas to serve as water quality buffers.
 5. The clustering of development into areas that take advantage of the most protected zones.
 6. Proposed development layouts reviewed by fire officials.
 7. An assessment of the existing vegetation conditions and conduct fuel management practices prior to construction.
 8. An incorporation of Firewise design principles into the properties and building construction materials.
 9. The development of fuel management plans for vegetated areas and maintenance schedules. Make sure these are conducted regularly. Have local fire officials inspect development common areas and residential properties for assessment.
 10. The nomination of your development for Firewise Community/USA® recognition. Distribute wildfire education materials to homeowners and alert them to safe Firewise practices on their property. Educate homeowners on the Firewise design and management for the development, including the values of prescribed burning practices or water quality management practices that are being used. Residents will better accept smoke management, savanna landscapes, or buffer zone management when alerted to the important environmental values associated.

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11.0 Additional Resources

Relevant research and materials developed regarding Firewise landscaping for the southeastern U.S. include:

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State Firewise Coordinators are administered through state forestry commissions. For assistance with Firewise® information, contact your state forestry commission.

Becoming a Recognized Firewise Community/USA®



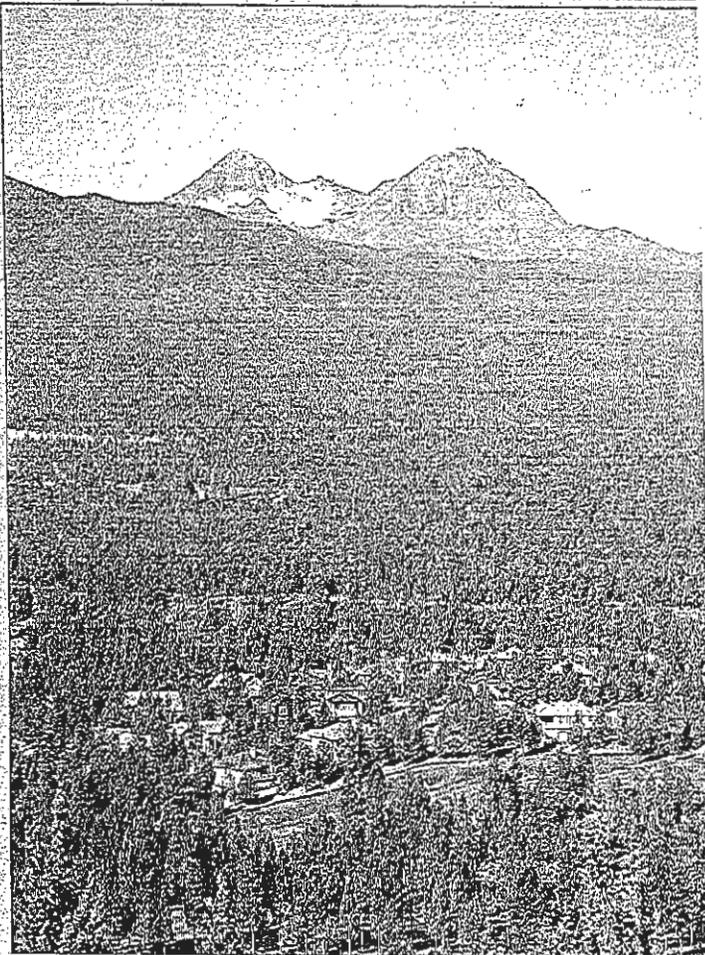
*What is Firewise
Communities/USA®?*

*How Can My Community
Become A Recognized
Firewise Community?*

*What are the Recognition
Criteria?*

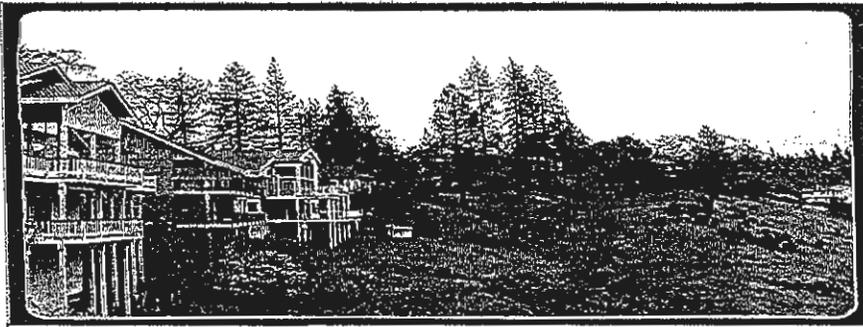
*What is the Home Ignition
Zone and Why is it so
Important?*

*What are the Benefits
of Being a Firewise
Community?*



Living with Wildfire

Whether you've lived in the wildland/urban interface for years, or are purchasing or renting your dream home away from the hectic pace of city life, you may be concerned about wildfire. Living where wildfires can occur poses a risk to your property and loved ones — but it is possible to live compatibly with this natural event. Read on to learn more about how your participation in the Firewise Communities/USA Recognition Program can make you and your home safer.



What is Firewise Communities/USA®?

Citizen involvement is the cornerstone of the Firewise Communities/USA® Recognition Program. If you are a homeowner or community resident whose home is located in a region susceptible to wildfires, this brochure will offer you relevant information on how you can help your community to become Firewise. As participants in the Program, you and your neighbors will learn how to decrease the risk of losing your homes and to best protect yourselves in the event of wildfire.

Within wildland/urban interface areas, firefighters lack the resources to defend every home that is threatened during ex-

treme wildfires. However, communities whose residents take steps to reduce their vulnerability have a greater chance of surviving a wildfire. Firewise Communities/USA offers residents in fire-prone areas a unique opportunity to implement Firewise practices specially tailored to individual and community needs. You and your neighbors will gain useful knowledge and skills to prepare for a wildfire before it occurs, while also helping you maintain an acceptable level of fire readiness. Firewise homes and communities allow fire fighters to concentrate on fighting the wildfire — which ultimately saves more homes and lives. What's more, even a few preventive

actions can prove critical, because when adequately prepared, homes have often survived a wildfire without the intervention of the fire department.

The Program draws on a community's spirit, its resolve, and its willingness to

take responsibility for reducing wildfire risks by providing the resources needed to achieve both a high level of protection against wildland/urban interface fire and ecosystem balance. The Program utilizes the following three-legged template:

- Wildland fire staff from federal, state or local agencies provide a community with information about living with wildfire with mitigation information tailored to your specific community or region.
- With the assistance of wildland fire staff, you and your neighbors assess wildfire risks around you and devise a cooperative network of other homeowners, agencies, and organizations.
- You and your neighbors identify and implement local solutions.



How Can My Community Become A Recognized Firewise Community?

Ultimately, it all begins with you. Becoming Firewise takes time and coordination with your neighbors and others, but getting started is actually quite straightforward. The Firewise Communities/USA standards offer flexibility in creating the most appropriate plan and actions for your community. You will find that the effort expended reaps many rewards.

Following these steps, your community will be on its way toward becoming Firewise.

- 1) *Contact Firewise* — A community representative (you or another interested member of your community) completes an on-line request for contact by a Firewise representative on the Firewise Communities/USA web site, www.firewise.org/usa.
- 2) *Site Visit* — At an agreed-upon time, your state's Firewise Communities/USA liaison, a specialist in wildland/urban interface (WUI) fire, will visit your area and assess the proposed site. The visit is coordinated with local fire officials.

3) *Community Representatives* — At the same time, your community “spark plug” (again, this could be you) recruits community representatives to create a multi-disciplined Firewise board or committee. This group should include homeowners and fire professionals but may also include planners, land managers, urban foresters and members of other interest groups. Be aware that the development of the Firewise Community plan may take up to six months.

4) *Assessment & Evaluation* — Upon completing a site assessment and evaluation of the community’s wildfire readiness, the WUI specialist schedules a meeting with your local Firewise board to present the assessment for review and acceptance by the board. If accepted, the process continues; if not, it is terminated.

5) *Moving Forward/Creating A Plan* — Your local Firewise board develops area-specific solutions to its WUI fire issues based on the WUI specialist’s report. All members of the Firewise board must concur with the final plan. The recommendations are presented to and approved by the WUI specialist. The specialist may work with your community to seek project implementation funds, if needed.

6) *Implement Solutions* — Local solutions are implemented following a schedule designed by your Firewise group, who will be responsible for maintaining the program into the future.

7) *Apply for Recognition* — Firewise Communities/USA recognition status is achieved after your community submits its application form along with a completed Firewise community plan and Firewise event documentation to your state’s Firewise liaison. *The application form is available online and more information on Firewise Recognition Criteria is on Page 5.*

8) *Renewing Your Recognition Status* — Annual renewal of your recognition is completed by submitting documentation of your community’s continued participation to the state Firewise liaison. *This can be easily accomplished with the on-line form available at www.firewise.org/usa.*

www.firewise.org/usa

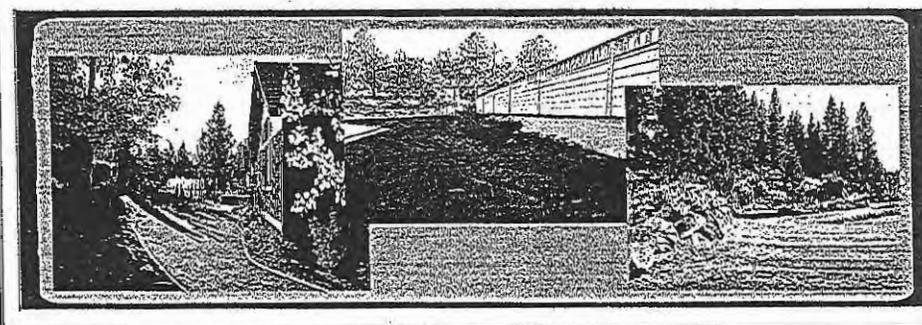
The image shows a sample of the Firewise Communities/USA Application form. The form is titled "FIREWISE COMMUNITIES/USA APPLICATION" and includes sections for community information, recognition criteria, and contact details. The form is partially filled out with handwritten text.

What are the Recognition Criteria?

Neighborhoods, subdivisions, and small towns in fire-prone areas of the United States can earn Firewise Communities/USA Recognition status by creating dedicated local Firewise task forces and by implementing Firewise principles tailored to their specific community needs. This nationwide initiative recognizes communities for taking action to protect people and properties from the risk of fire in the wildland/urban interface. Communities create their programs themselves with cooperative assistance from local fire staff and state forestry agencies.

Fire-prone communities earn Firewise Communities/USA recognition status by meeting the following criteria:

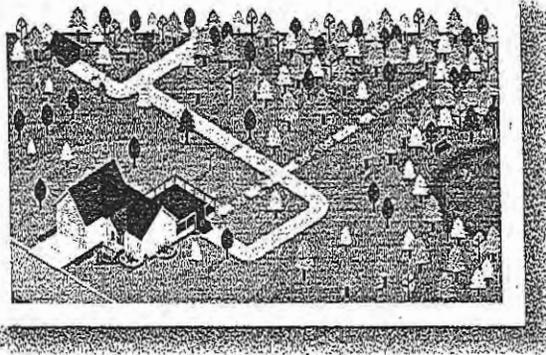
-  Enlisting a wildland/urban interface specialist to complete an assessment and create a plan that identifies locally agreed-upon solutions that the community can implement.
-  Sponsoring a local Firewise task force, committee, commission or department which maintains the Firewise Community program and tracks its progress or status.
-  Observing a Firewise Communities/USA Day each year that is dedicated to a local Firewise project.
-  Investing a minimum of \$2.00 annually per capita in local Firewise Communities/USA efforts. (Work by municipal employees or volunteers using municipal and other equipment can be included, as can state/federal grants dedicated to that purpose.)
-  Submitting an annual report to Firewise Communities/USA, documenting continuing compliance with the program.



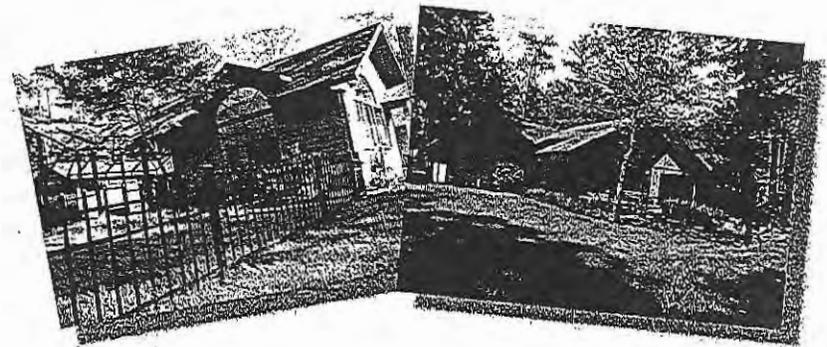
What is the Home Ignition Zone and Why is it so Important?

The Home Ignition Zone is the key to preparing your home for wildfire readiness. Your home ignition zone – including the condition of the house and its immediate surroundings within 100 to 200 feet and other structures such as garages, decks, porches, or fences that come in contact with the house – is what determines your home's susceptibility to ignition during a wildfire. "The more you can eliminate the things that can lead a wildfire to your home, the more likely your home will survive," notes Judith Leraas Cook, project manager of the Firewise Communities/USA Recognition Program. She offers some simple steps for evaluating your home ignition zone and making it a deterrent to the progress of the fire:

- Clear the build up of pine needles and leaves from the base of the house and any connecting structures which could otherwise ignite the home's siding.
- Create a three-foot, fire-free area on all sides of your home.
- Clear gutters of leaves and debris.
- Trim any limbs on trees hanging over the house.
- "Limb up" trees around the house by removing lower limbs that are 10 to 15 feet from the ground.
- Use metal flashing at all connection points of structures, such as wooden fences attached to the house.
- Clear trees and shrubs of dead material and keep them pruned. Space trees and shrubs far enough apart to slow the spread of an approaching wildfire.
- Regularly care for your property to keep it free of all dead leaves and needles.
- Choose deciduous trees, rather than evergreens, when planting close to your home. Sap from evergreens is good fuel for fire. Deciduous plants burn more slowly.



- Install glass skylights. Plastic melts during a fire.
- Store firewood well away from your house, particularly during fire-season.
- Remove excess vegetation along roads and remove chipped wood immediately after cutting.
- Use non-flammable (Class A) roofing materials.
- Plant native wildflowers and fire-resistant plants; keep lawns green and irrigated as they serve as good fire breaks, as do rock gardens and xeriscapes.
- Remember that wide driveways, non-flammable walkways and other pathways can slow or stop the spread of a wildfire.



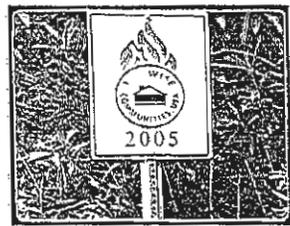
The national Firewise Communities program is an interagency program designed to encourage local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from the risk of wildfire. The Firewise Communities program is sponsored by the National Wildfire Coordinating Group's Wildland/Urban Interface Working Team, a consortium of wildland fire agencies that includes the USDA Forest Service, the Department of the Interior, the Federal Emergency Management Agency, the International Association of Fire Chiefs, the National Emergency Management Association, the US Fire Administration, the National Association of State Fire Marshals, the National Fire Protection Association, and state forestry organizations. For more information, visit www.firewise.org.

This publication was supported with funds from Department of Homeland Security/Federal Emergency Management Agency Grant Number EMW-2005-GR-0433; its content does not necessarily reflect the views of the Department of Homeland Security or the Federal Emergency Management Agency.

What are the Benefits of Being a Firewise Community?

While the benefits can vary, there are a number of positive outcomes experienced by communities that become members of the Firewise Communities/USA Recognition Program. Being "Firewise":

- Creates defensible space that prevents fires from advancing and endangering homes and lives.
- Improves property value while reducing risk of loss.
- Improves community relationships with local fire staff, since firefighters can concentrate their efforts on fighting wildfires rather than devoting often limited resources to protecting homes – which may ultimately be lost if the fire can't be contained.
- Encourages good neighbors, since the more homes within a community that adopt "Firewise" practices, the greater the impact on reducing the heat and speed of the fire.
- Offers peace of mind, knowing that your home is prepared to survive a wildfire in the event one should occur.



Where Can I Get More Information about Firewise Communities/USA?



For more information on the Firewise Communities/USA Recognition Program, visit www.firewise.org/usa or contact your state forestry agency.

4

**Towing Services Request for Proposals For
Use by Police Department**

Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: CONSIDERATION OF TOWING SERVICES REQUEST FOR PROPOSALS FOR USE BY POLICE DEPARTMENT'S WRECKER ROTATION LIST AGREEMENT.

Summary: The Front Royal Police Department (P.D.) comes into frequent contact with vehicles that need to be towed by commercial towing, or wrecker, trucks. Most towing services charge similar prices for similar services. However occasionally, P.D. and the people that need towing services (Customers) have come into contact with tow services that charge fees that are considerably outside and larger than the norm for the Front Royal/Warren County area. In these cases both P.D. and the Customers do not learn of what these outsized fees will be until the tow has been performed. This has caused some problems, as might be expected. In addition, not all tow services have the equipment to make all tows: large disabled trucks and other heavy equipment will require heavier tow trucks than some tow services are equipped to handle. As a result, P.D. wishes to send out a Request for Proposals to interested tow service businesses to respond in writing to inform P.D., and thereby, the Customers, in advance of their tow services fees, and equipment and storage facilities, so that P.D. can have a Wrecker Rotation List Agreement with three or more of the most competitive tow service businesses that offer the best value to Customers and to P.D. Customers will be free to choose whichever tow service business they wish, of course, but if a Customer does not know a tow service in advance, they will at least have a list of competitive tow services to choose from.

Council Discussion: Council is requested to consider whether or not it wants to send out a Request for Proposals for tow service businesses who would be interested in entering into a Wrecker Rotation List Agreement with the P.D. and being on the P.D.'s Wrecker Rotation List.

Staff Evaluation: Inasmuch as the Town cannot set, and would not want to set if it could, the prices tow service businesses charge their Customers, but at the same time the Town does want its Customers to have transparency in its dealings with tow service businesses at a time of inconvenience and difficulty for the Customer, having a Wrecker Rotation List and Agreement, with advertised prices for P.D. and Customers to know what will be charged in advance, seems to be fair to all concerned.

Budget/Funding: None expected, other than the cost of advertising the RFP.

Legal Evaluation: The Town Attorney will be available to answer legal questions.

Staff Recommendations: Staff recommends sending an RFP and determining the level of interest of tow service businesses.

Planning Commission Recommendation: Not applicable.

Town Manager Recommendation: The Town Manager concurs with staff's recommendation.

Council Recommendation:

- Additional Worksession
 Regular Meeting
 No Action



FRONT ROYAL POLICE DEPARTMENT WRECKER ROTATION LIST AGREEMENT

The following list of requirements serves as the agreement between the tow company or business (Tow Service) and the Front Royal Police Department (Police Department); if these requirements are not met and continuously maintained, the Tow Service will be subject to suspension or removal from the Police Department Wrecker Rotation List:

Any Tow Service desiring to perform work at the request of the Front Royal Police Department (Police Department) and thereby be on the Police Department's Wrecker Rotation List acknowledges and agrees that any tow or wrecker service (Tow Service) called by the Police Department must interact with the registered owner, operator, or legal possessor of the vehicle being towed in a professional and businesslike manner.

As of April 1, 2015, all tow services requesting placement upon the Police Department's Wrecker Rotation List so as to be a Tow Service are required to submit their basic business, insurance, and contact information along with their acknowledgment of these agreement requirements. Failure to notify the Police Department (in writing) with information changes from that which the Tow Service initially submitted on the Police Department's Wrecker Rotation Form regarding the Tow Service's business address, storage lot location, insurance changes, or any other information changes will result in the Tow Service being suspended or terminated from the Police Department's Wrecker Rotation List.

The Tow Service's business office may not be the same physical address as the owner's residence unless it is properly zoned for commercial purposes and advertised as a business property.

Proof of insurance including certificate of insurance covering the tow company's business office, storage lot and equipment) shall be filed with the Front Royal Police Department / Town of Front Royal Va. This information shall include the amount of coverage limits and shall include worker's compensation insurance for any employees of the Tow Service, if applicable.

By being on the Wrecker Rotation List, the Tow Service shall indemnify and hold harmless the Police Department, the Town of Front Royal, Virginia (Front Royal) or other law enforcement agencies assisting the police department, their agents, officers, employees and representatives from any and all claims, casualties, damages or injuries to persons or property arising out of its actions pursuant to this agreement.

All Tow Services must be and remain current in all financial obligations to Front Royal.

Tow Services shall maintain and register all trucks and equipment within Front Royal and Warren County pursuant to all Local, State and Federal requirements. Tow Services shall comply with all applicable Federal, State and Local laws, including but not limited to, the securing of all necessary Federal, State, and Local licenses. All Tow Services that tow under this agreement shall

display a Tow Truck for Hire license plate or a HA for hire license plate. Dealer tags or license plates shall not be displayed on tow trucks that respond to calls. Each tow truck must be equipped with legally required lighting and other safety equipment to protect the public and such equipment must be in good working order. All Tow Trucks for hire must be properly lettered to conform to Virginia Code Section 46.2-1076 (copy attached).

A representative from the Tow Service shall be on call and available on a 24-hour basis for emergencies from law enforcement. Tow Services shall provide 24 hours-per-day towing service each day of the year. All Tow Services shall have available sufficient and qualified personnel to receive calls from law enforcement and execute the towing. All Tow Services shall have on-duty at all times sufficient personnel to maintain constant contact with the Police Department by telephone to dispatch for towing as requested by the Police Department.

Time is of the essence in the performance of towing services. The Tow Service must arrive on the scene within thirty (30) minutes of receiving a call for passenger automobiles or within forty-five (45) minutes for medium-duty and heavy-duty towing calls. Tow Services must be familiar with the topography of Front Royal or have a GPS device accessible for use by tow truck drivers in an effort to lessen response time to unknown or unfamiliar call locations. If the Tow Service fails to meet the specified time limit, the Police Department will notify a second tower. Once a second Tow Service has been notified, services from the first Tow Service will be considered canceled, and the first Tow Service called will move to the bottom of the Wrecker Rotation List, and neither the Police Department, other law enforcement personnel, nor the vehicle owner will be liable for any payment to the first Tow Service notified. The Tow Service will not be held responsible for unavoidable delays caused by circumstances beyond their control such as inclement weather, natural disasters, etc. However, if excessive delays are caused by circumstances within the Tow Service's control such as negligence, lack of manpower, poorly conditioned equipment, etc., the Tow Service may be suspended or terminated from the Wrecker Rotation List.

All equipment used by Tow Services must be in good working order. Tow Services shall use only tow trucks owned or leased by them when responding to the Police Department's call for service. A call received by one Tow Service shall not be passed on from that Tow Service to another towing business that is not a Tow Service, and then not until the Police Department has first been notified. No Tow Service shall respond to an accident, scene of an emergency or mechanical breakdown for the purpose of towing vehicles unless specifically called to be there by the Police Department, other law enforcement personnel, or the person involved in the accident or emergency. Response to calls for service from any towing firm, by requesting towing equipment from another towing firm, regardless of ownership is prohibited. However, the initial Tow Service, with the approval of the law enforcement officer in charge at the scene, may contract with another tower within Front Royal / Warren County and or a specialized heavy duty wrecker or tow truck from an outside jurisdiction that specializes in hazardous material removal or heavy duty extrications to assist the Tow Truck reasonably believes that additional assistance is necessary in order to effectuate a safe and damage-free tow. Law enforcement will have the authority to call

for additional assistance. If a tow truck is not available, then the Tow Service shall immediately indicate to the Police Department dispatcher that they are unable to respond and the reason why. The Police Department dispatcher shall then notify the next Tow Service on the wrecker rotation list.

All Tow Services shall have business cards available for distribution to the registered owner, operator, or legal possessor of the vehicle towed that contain the following information: name of the towing business, physical address of business (no Post Office Box numbers), telephone number and after-hours telephone number, if applicable.

All Tow Services must possess such valid Virginia driver's license or commercial driver's license as may be required, and shall be qualified to operate the tow vehicle and its equipment. It will be the Tow Service's responsibility to ensure all their towing operators meet these requirements. All towing operators shall refrain from alcohol use and/or taking any drugs or narcotics which may impair driving or perception, either by a doctor's prescription or of his own free will while operating a tow vehicle when responding to any law enforcement call for service. As required by Virginia Code Section 18.2-324 (copy attached), Tow Services shall remove from the roadway all litter, glass, and debris caused by the incident that necessitated the towing.

The Tow Service shall tow disabled vehicles to such destinations requested by the vehicle owner or other person with apparent authority after financial obligations to the Tow Service have been finalized. All fees for towing services and vehicle storage fees charged by the Tow Services must be consistent with what the Tow Service submitted to Front Royal in response to the Request for Proposals for Wrecker Rotation List that the Tow Service submitted that year and what is deemed usual and customary by other towing businesses in Front Royal and Warren County during the time that a vehicle is towed. Excessive fees and overcharges by the Tow Services will result in the Tow Service's removal from the Wrecker Rotation List.

The Tow Service must at all times allow a vehicle's registered owner, operator, or legal possessor access to their towed vehicle to retrieve their vehicle or their property inside their vehicle during normal business hours within a thirty (30) minute response time.

A Tow Service shall maintain and own or lease a secure, properly zoned, dedicated storage area able to secure all towed vehicles towed by the Tow Service. The storage area should have a graveled or paved surface and be fully enclosed by a commercial grade fence at least six (6) feet tall or enclosed by a permanent structure. The Tow Service shall be required to continuously carry and maintain in full force and effect an insurance policy sufficient to cover fire, theft, windstorm, vandalism, and other perils for vehicles stored within their storage facility.

The Tow Service accepts reasonable responsibility for a towed vehicle from the time hook-up begins until the towed vehicle reaches the intended destination. The Tow Service shall be reasonably responsible for any vehicle towed and any vehicle contents from the time the vehicle is towed until one of the following events occur: the vehicle is delivered to a location specified by

the owner or other authorized person, or the vehicle and property is released to and accepted by the owner or authorized person in the same condition as originally towed, or the vehicle is otherwise disposed of according to law. The Tow Service also accepts reasonable responsibility for any personal property left in any towed and stored vehicles of the Tow Service as may be otherwise determined by law. Upon request or demand, the Tow Service shall return personal property stored in or with a vehicle the Tow Service has towed or stored, whether or not the towing or storage fee on the vehicle has been or will be paid. Personal property, for purposes of this provision, includes any goods, wares, freight, or any other property having any value whatsoever other than the towed or stored vehicle itself. Personal property does not include installed radios, tires, batteries, etc.

The Tow Service shall keep records of all vehicles that have been towed pursuant to this agreement. These records shall include, at a minimum, the date and time of tow, the vehicle's license number and state of issue, the vehicle's identification number, the year, make, model and color of the vehicle, the location from which it was towed, the charges for towing and storage, and the disposition of the vehicle along with the date of the disposition. The aforementioned records shall be readily accessible upon request from the Police Department.

Tow Services shall promptly arrange for the release of vehicles towed or stored pursuant to this agreement. An attendant shall be on-duty (or available within a thirty (30) minute response time) from the hours of 8:00 a.m. through 5:00 p.m. weekdays for the purpose of permitting inspections, releasing personal property, or releasing stored vehicles. After hours, on weekends, and all holidays the owner or attendant must be available by telephone at all times for such purposes. Tow Services, upon receiving a request to permit an inspection or release of a stored or seized vehicle from the owner, operator, or other authorized person, shall arrange for the inspection or release of the vehicle with the vehicle owner, operator, or other authorized person weekdays between the hours of 8:00 a.m. and 5:00 p.m. within two (2) hours of receiving notice thereof. The foregoing notice provision shall apply likewise for the release of personal property and contents within the vehicle. All fees charged for any off-hour release/inspection shall be reasonable and consistent of those fees charged by other Tow Services in Front Royal and Warren County for comparable services.

Tow Services shall not release any vehicle designated as "Seized" or "Seized for Forfeiture" by the Police Department until the Tow Service obtains permission from the Police Department to release the vehicle. If an owner or lien holder fails to claim any vehicle or if a Tow Service wants to satisfy any lien that it has on a vehicle, it shall be the Tow Service's responsibility to dispose of or sell the vehicle in compliance with the Code of Virginia.

Failure by a Tow Service to comply with this agreement or with the provision of its proposal pursuant to the Town's Request for Proposals for Wrecker Rotation List for the current calendar year shall be ground for termination of this agreement and removal of the Tow Service from the Wrecker Rotation List.

Tow Services will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. Tow Services agree to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

Tow Services do not, and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

Tow Services organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law.

During the performance of this agreement, all Tow Services agree to (i) provide a drug-free workplace for the Tow Service's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in Tow Service's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Tow Service that the Tow Service maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of the Tow Service of over \$10,000, so that the provisions will be binding upon each subcontractor or vendor.

In compliance with Virginia Code § 2.2-4343.1., the Town of Front Royal does not discriminate against faith-based organizations.

Va. Code § 46.2-1076. Lettering on certain vehicles used to transport property.

No person shall drive, cause to be driven, or permit the driving of a "for hire" motor vehicle on the highways in the Commonwealth unless the name and address of the owner of the vehicle is plainly displayed on both sides of the vehicle. The letters and numerals in the display shall be of such size, shape, and color as to be readily legible during daylight hours from a distance of fifty feet while the vehicle is not in motion. The display shall be kept legible and may take the form of a removable device which meets the identification and legibility requirements of this section.

Va. Code Section 18.2-324. Throwing or depositing certain substances upon highway; removal of such substances.

No person shall throw or deposit or cause to be deposited upon any highway any glass bottle, glass, nail, tack, wire, can, or any other substance likely to injure any person or animal, or damage any vehicle upon such highway, nor shall any person throw or deposit or cause to be deposited upon any highway any soil, sand, mud, gravel or other substances so as to create a hazard to the traveling public. Any person who drops, or permits to be dropped or thrown, upon any highway any destructive, hazardous or injurious material shall immediately remove the same or cause it to be removed. Any person removing a wrecked or damaged vehicle from a highway shall remove any glass or other injurious substance dropped upon the highway from such vehicle. Any persons violating the provisions of this section shall be guilty of a Class 1 misdemeanor.

This section shall not apply to the use, by a law-enforcement officer while in the discharge of official duties, of any device designed to deflate tires. The Division of Purchase and Supply shall, pursuant to Va. Code Section 2.2-1112, set minimum standards for such devices and shall give notice of such standards to law-enforcement offices in the Commonwealth. No such device shall be used which does not meet or exceed the standards.

Signature of Tow Service Owner

Date

Signature of Front Royal Police Department Official

Date

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BZA Term Expires



Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: Board of Zoning Appeals (BZA) Term Expires

Summary: Kisha L. Phillips term on the Board of Zoning Appeals (BZA) will expire May 1, 2015. Ms. Phillips was recommended by Council to the Judge of the Warren County Circuit Court for appointment on the BZA on May 24, 2010 to fill an un-expired term. At this time, Ms Phillips has not indicated whether should would like to be considered for recommendation. Council is requested to direct staff on their desired action.

Council Discussion: Council takes desired action.

Staff Evaluation: N/A

Budget/Funding: N/A

Legal Evaluation: N/A

Staff Recommendations: N/A

Town Manager Recommendation: N/A

Council Recommendation:

Additional Work Session Regular Meeting No Action

Consensus Poll on Action: ___(Aye) ___(Nay)

Work Session

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2015 VML Committee Nominations



Town of Front Royal, Virginia Work Session Agenda Form

Date: March 16, 2015

Agenda Item: 2015 Virginia Municipal League (VML) Policy Committee Nominees

Summary: Attached is the nomination form and policy committee process for the 2015 Virginia Municipal League (VML) Policy Committees. The nomination form is due to VML April 17, 2015; therefore, Council will vote on the nominations at the next regular meeting. All terms are for May 2015 – December 2015 and no individual may serve on more than one committee. Below are the Policy Committee members voted by Council at the April 28, 2014 Council meeting and whose terms expired December 2014.

Community & Economic Development Committee – Vice Mayor Parker & Councilman Sayre
Environmental Quality Committee – Town Manager Steven Burke
Finance Committee – Councilman Funk and Finance Director Kim Gilkey-Breeden
General Laws Committee – Town Attorney Doug Napier
Transportation Committee – Councilman Hrbek and Councilman Tharpe

Council Discussion: Council takes desired action at the next Regular Meeting

Staff Evaluation: None

Budget/Funding: None

Legal Evaluation: Town Attorney will be available

Staff Recommendations: None

Town Manager Recommendation: Town Manager will be available

Council Recommendation:

Additional Work Session Regular Meeting No Action
Consensus Poll on Action: ___(Aye) ___(Nay)

Work Session



OFFICERS

PRESIDENT

WILLIAM D. EUILLE
ALEXANDRIA MAYOR

PRESIDENT-ELECT

RON RORDAM
BLACKSBURG MAYOR

VICE PRESIDENT

ROBERT K. COINER
GORDONSVILLE MAYOR

IMMEDIATE PAST PRESIDENT

DAVID P. HELMS
MARION MAYOR

EXECUTIVE DIRECTOR

KIMBERLY A. WINN

MAGAZINE

VIRGINIA TOWN & CITY

March 9, 2015

To: Key Officials of Full Member Local Governments
Council and Board Clerks of Full Member Local Governments

From: Kim Winn, Executive Director

Subject: 2015 VML Policy Committee Nominations

The Virginia Municipal League is now accepting nominations for its 2015 policy committees. Accompanying this document is a description of the policy committee process, along with a nomination form. Please complete the nominations form and return it to VML by April 17. If your community has an election in May, please return this form by the requested date even if you must revise it later.

Please observe the following guidelines when making your policy nominations:

- Only full-member local governments may participate.
- You may nominate two individuals to a committee; if two are nominated, at least one nominee must be a governing body member.
- Only members of a council or board of supervisors and appointed officials (i.e., employees of the local government) are eligible to serve.
- Individuals may serve on only one committee a year.
- The chief administrative officer or mayor/board chairman must sign the nomination form.
- Please return nomination forms by April 17.

We will forward information about policy committee meeting times and location as soon as they are confirmed. Policy committee recommendations that emerge from the July meeting will be forwarded to the Legislative Committee for consideration at its September meeting.

Please call/email Janet Areson (804/523-8522, jareson@vml.org) if you have any questions about the appointment process

P.O. Box 12164
RICHMOND, VIRGINIA 23241

13 EAST FRANKLIN STREET
RICHMOND, VIRGINIA 23219

804/649-8471
FAX 804/343-3758
e-mail@vml.org
www.vml.org

VML 2015 Policy Committee Nominations

Please return this form by **April 17** to Joni Terry at VML, P.O. Box 12164, Richmond, VA 23241; Fax 804/343-3758; email: jterry@vml.org

Community & Economic Development

Name & Title: _____

Name & Title: _____

Environmental Quality

Name & Title: _____

Name & Title: _____

Finance

Name & Title: _____

Name & Title: _____

General Laws

Name & Title: _____

Name & Title: _____

Human Development & Education

Name & Title: _____

Name & Title: _____

Transportation

Name & Title: _____

Name & Title: _____

Signed: _____ **Locality:** _____
(Mayor/Chair, or Manager/Administrator)

VML's Legislative and Policy Committee Process

Each year the Virginia Municipal League develops two separate documents -- a legislative program and a compilation of policy statements -- through a process that involves the Legislative Committee and six separate policy committees. The Legislative Committee is responsible for developing the legislative program, but it may also rely on input from the policy committees to do so. The policy committees develop broad policy statements, in addition to submitting specific legislative recommendations for consideration by the Legislative Committee.

Legislative Committee

What is the role of the Legislative Committee?

The Legislative Committee is responsible for considering and developing positions on existing or proposed state and federal legislation or regulations, and urging the enactment or amendment of, or opposition to, such legislation or regulations.

How is the Legislative Committee appointed?

VML's Constitution spells out the composition of the Legislative Committee. The committee consists of 24 individuals holding local elective or appointed positions, all appointed by VML's President. Of the 24 members, 12 must be representatives of cities and urban counties with populations in excess of 35,000, six must be representatives of cities and urban counties with populations of 35,000 or less, and six must represent towns.

What is included in VML's Legislative Program?

The legislative program adopted by the Legislative Committee reflects specific legislative objectives that VML hopes to achieve during the upcoming legislative session. It is subject to the approval of VML's membership at the annual conference.

What is the relationship between the legislative committee and VML's policy committees?

The Legislative Committee meets prior to the policy committees to identify issues that it would like the committees to consider for potential inclusion in the league's legislative program. It meets again after the policy committees have met to consider their recommendations.

Policy Committees

What is the role of the policy committees?

Policy committees receive briefings on select statewide issues, consider possible changes to the policy statement, and develop legislative recommendations for the Legislative Committee to consider.

How are policy committees appointed?

Policy committee membership consists of elected and appointed officials of full-member local governments. Nomination information is sent in the spring to each locality, and each local government determines which of its officials will be nominated for each of the six policy committees. Each local government may nominate up to two people per policy committee, at least one of whom must be an elected official.

What are the benefits of serving on a policy committee?

VML policy committees offer members an opportunity to learn about current and emerging statewide issues that affect local governments, to develop through policy statements the broad philosophical framework that guides the league, and to network with local officials with similar policy interests.

How many policy committees are there?

There are six policy committees: community and economic development, environmental quality, finance, general laws, human development and education, and transportation.

What issues does each policy committee cover?

- **Community & Economic Development:** Authority, administration, and funding of local governments to manage a full range of community and economic development issues, including business development and retention, international competitiveness, infrastructure development and investment, planning, land use and zoning, blight, enterprise zones, housing, workforce development and historic preservation.
- **Environmental Quality:** Natural resources and the authority of local governments to manage the environment, including water resources and quality, solid and hazardous waste management, air quality and the Chesapeake Bay.
- **Finance:** Powers, organization and administration of local government financing, including taxing authority, debt financing, state aid to local governments and federal policies affecting local finance issues.
- **General Laws:** Powers, duties, responsibilities, organization and administration of local governments, including state-local and inter-local relations, conflicts-of-interest, freedom-of-information, information management and personnel, telecommunications, utilities and law enforcement, jails and courts issues.
- **Human Development and Education:** Management and funding of social services, preK-12 education, health, behavioral health, juvenile justice, recreation, rehabilitation and aging.
- **Transportation:** Development, maintenance, and funding of a comprehensive land, sea and air transportation system for the Commonwealth, and federal, state and local roles in the provision and regulation of transportation.

What is a policy statement?

Each policy committee develops a policy statement that covers issues in its respective area. The policy statement expresses the agreement of VML's membership on matters of interest to local governments. The statement generally addresses broad, long-term, philosophical positions. The VML membership approves the policy statements at its annual meeting.

How do policy statements differ from VML's legislative program?

Policy statements are general in nature. They reflect local governments' positions on a range of issues. The Legislative Program is more specific and immediate. It is limited to legislative positions that VML expects to lobby on during the upcoming legislative session.

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Council Discussion/Goals

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Closed Meeting