

AGENDA  
Jefferson County Planning Commission  
Tuesday, April 10, 2018 7:00 PM

Planning Commission meetings are held in the Old Charles Town Library Meeting Room located at 200 East Washington Street, at the side entrance on Samuel Street in the City of Charles Town.

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**All Citizens that desire to speak must sign-in prior to the Agenda Item being addressed.**

Welcome to newest Planning Commission member Mike Shepp.

1. Approval of Meeting minutes:
  - March 13, 2018
2. Citizen Communications: If you wish to comment, please sign-in to speak for issues that are not on the agenda or items that are not open for public comment. Items not open for public comment will be so noted.
3. Request for postponement.
4. **Public Workshop:** Concept plan for Chestnut Manor Subdivision. (PC File# 18-04) A proposed 19 lot Major Cluster Development including a 49.85 green space. Owner/Applicant: Daniel Zappe. The property is designated as Tax District: Harpers Ferry (04); Tax Map: 19; Parcel 37 Zoned: Rural. Size: 92.628 acres.
5. **Public Workshop:** Concept plan for Magnolia Springs Subdivision. (PC File# 18-05) A proposed 301 lot Major Subdivision. Owner/Applicant: Belvedere Family Trust. The property is designated as Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6. Zoned: Residential Growth. Size: 67.8 acres.
6. **Public Hearing:** Waiver Request for Magnolia Springs Subdivision. (PCW#18-03) Applicant is requesting a waiver from Section 21.101.A of the Subdivision Regulations that require a block length to not exceed 6 lots. The applicant is requesting a block length of 12 lots on one side of the street. Owner/Applicant: Belvedere Family Trust. The property is designated as Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6. Zoned: Residential Growth. Size: 67.8 acres.
7. **Public Hearing:** Waiver Request for Magnolia Springs Subdivision. (PCW#18-04) Applicant is requesting a waiver from Section 21.104.A of the Subdivision Regulations that requires a minimum lot frontage width of 80'. The applicant is requesting a minimum lot frontage of 70'. Owner/Applicant: Belvedere Family Trust. The property is designated as Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6. Zoned: Residential Growth. Size: 67.8 acres.
8. **Public Hearing:** Waiver Request for Magnolia Springs Subdivision. (PCW#18-05) Applicant is requesting a waiver from Section 21.306 of the Subdivision Regulations due to shallow block depth, topography and natural resources. Owner/Applicant: Belvedere Family Trust. The property is designated as Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6. Zoned: Residential Growth. Size: 67.8 acres.
9. **Public Hearing:** Waiver Request for Magnolia Springs Subdivision. (PCW#18-06) Applicant is requesting a waiver from Section 2.2.K.1.a of the Subdivision that require Roadway, curbs, gutters and sidewalks be required in residential conventional subdivisions where net residential density is greater than three dwelling units per acre of land where lot frontages are 80' or less. Applicant is requesting curb and gutters not be required if previous waiver (PCW18-04) of lot frontages has been approved.

Owner/Applicant: Belvedere Family Trust. The property is designated as Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6. Zoned: Residential Growth. Size: 67.8 acres.

**There is no public comment for the following items.**

10. **Discussion and Possible Action:** Discussion of public comment received on proposed text amendment to the Jefferson County Zoning and Land Development Ordinance, File #ZTA17-01. The text amendment, in accordance with WV Code 8A and Article 12 of the Zoning Ordinance, proposes revisions to Article 10 Provisions for Signs. The primary purpose of this amendment is to create provisions to allow electronic signs in Jefferson County. The amendment also includes reorganization of existing text for clarification. *(This item was left open for two weeks after the 3/13/18 Public Hearing for written comments.)*
11. Reports from Legal Counsel and legal advice to the Planning Commission.
12. Planners Memo
13. President's Report.
14. Actionable Correspondence.
15. Non-Actionable Correspondence;

**DRAFT**

Jefferson County Planning Commission  
March 13, 2018

The Jefferson County Planning Commission met on March 13, 2018 with the following Commission members present: Donnie Fisher, President; Steve Stolipher, Vice President; Wade Louthan, Secretary; Peter Onoszko, County Commission Liaison; Gene Taylor, Jack Hefestay, Ron Thomas, and Ray Bruning. Staff members present included Jennifer Brockman, County Planner; Jonathan Saunders, County Engineer; Alex Beaulieu, Zoning Administrator; Nathan Cochran, Assistant Prosecuting Attorney; and Rhonda Greenholtz, Planning Clerk.

Mr. J Ware was absent with prior notification.

Mr. Fisher called the meeting to order at 7:00 PM.

1. The minutes from the February 13, 2018 meetings were approved with no objections.
2. Citizen Communications. None
3. Request for postponement. None
4. A Public hearing was held by the Planning Commission for applicant Maurice Gladhill (PCV#18-01) for a Variance from Section 8.2.c.8 of the 1979 Subdivision Ordinance for a reduction from the required .5 slope to .27 for the Aspen Greens Phase IA Subdivision.

Ms. Jennifer Brockman provided an overview of the project. All of the infrastructure for Phase 1A is in place. When a project is completed “As-Built” drawings are submitted as required for a bond release. A requirement for a variance was noted with the review of these plans.

Mr. Maurice Gladhill, Owner/ Developer, explained the need for the variance. A 92 foot storm drain pipe near the entrance of the subdivision runs from one side of the road to the other. The specifications in the Ordinance require a minimum of one half of one percent fall. It is currently 27 hundredths of one percent. The pipe is less than a 2-inch difference from the requirements. The pipe has shown no signs of sediment build up and has been functioning properly. Staff has asked that the file be documented with an agreement with the HOA to maintain this pipe.

Mr. Jonathan Saunders, County Engineer stated that the main concern for pipes with flat slopes is that the velocity is reduced and more sedimentation will accumulate over time. This could result in the HOA enduring a higher maintenance cost. The Engineer of record has determined that the velocity through the pipe for a 1 year storm would be above the industry standard around 2 ft/s which would result in minimal sediment accumulation.

The Office of Engineering recommends approval of this variance if the applicant and HOA reach an agreement and provide documentation regarding the maintenance of this pipe.

Mr. Donnie Fisher opened the floor to Public Comment.

No Public comment was made.

Mr. Fisher closed the floor to Public Comment.

Mr. Fisher inquired if the agreement would be between the HOA and Developer.

Ms. Brockman responded saying that documentation will be provided once an HOA has been established. This typically happens when 50% of the lots have been sold.

Mr. Steve Stolipher made a motion to accept the variance as submitted by the applicant and that a note should be made to the file regarding an agreement that the HOA will maintain the pipe.

Mr. Ray Bruning seconded the motion. A vote was taken which carried unanimously.

5. A Public Hearing was held for a proposed text amendment to the Jefferson County Zoning and Land Development Ordinance, File #ZTA17-01. The text amendment, in accordance with WV Code 8A and Article 12 of the Zoning Ordinance, proposes revisions to Article 10 Provisions for Signs. The primary purpose of this amendment is to create provisions to allow electronic signs in Jefferson County. The amendment also includes reorganization of existing text for clarification.

Ms. Alex Beaulieu provided an overview of the proposed amendments stating the changes include items moved, new definitions, symbology, and a clean-up of the document.

Mr. Fisher opened the floor to Public Comment.

Ms. Charolette Bennett, resident of Jefferson County spoke in support of electronic signs at Churches as they are not allowed at this time. She is not opposed to them taking into consideration of the size and type.

Mr. Jeffery Bannon, resident of Jefferson County, spoke that he was shocked that electronic signs were even being considered in Jefferson County. Mr. Bannon stated that he is not in favor of electronic signs citing light pollution is a problem and should be reduced. Allowing these types of signs in industrial or commercial areas might be acceptable but not in rural or residential areas. He provided the Planning Commission with written comments and a handout that showed how to measure sign brightness for the record and what a "NIT" was.

Mr. Fisher closed the floor to Public comment.

Mr. Stolipher made a motion that written comments on this item remain open for two weeks and it will be readdressed at the next scheduled Planning Commission meeting.

Mr. Jack Hefestay seconded the motion. A vote was taken which carried unanimously.

6. A review of the County Commission's recommended revisions to the proposed text amendment ZTA16-02 pertaining to the Historic Preservation and standards for the Village District for consistency with the *Envision Jefferson 2035 Comprehensive Plan* was had.

Ms. Beaulieu stated that the most substantial changes recommended by the County Commission were to change all “Not Permitted” (NP) commercial uses in the Village District to “Conditional Use” (CP). The Planning Commission’s role is to recommend to the County Commission whether the proposed changes are consistent with the *Envision Jefferson 2035 Comprehensive Plan*. Staff believes these changes to be consistent with the Comprehensive Plan. This item is scheduled to be heard at a second Public Hearing before the County Commission on March 15, 2018.

Mr. Stolipher made a motion to recommend to the County Commission that the proposed revisions are acceptable and consistent with *the Envision Jefferson 2035 Comprehensive Plan*.

Mr. Wade Louthan seconded the motion. A vote was taken which carried unanimously.

7. Reports from Legal Counsel and legal advice to the Planning Commission.

a) Active Litigation:

- None

8. Planners Memo.

Ms. Jennifer Brockman took this time to inform the Planning Commission that Mr. Gene Taylor is not reapplying for his seat on the Board. This will be his last meeting. Ms. Brockman presented Mr. Taylor with a Certificate of Appreciation for his 9 years of service.

Ms. Brockman provided an update on the status of amendments. The latest amendment to the Subdivision Regulations has been recorded. A more major amendment will be forthcoming which would be more of a house keeping issue to make the document more reader friendly.

The next scheduled meeting will be held on April 10, 2018 which will include 2 concept plans for major subdivisions which will also include several waivers.

9. President’s Report. None

10. Actionable Correspondence. None

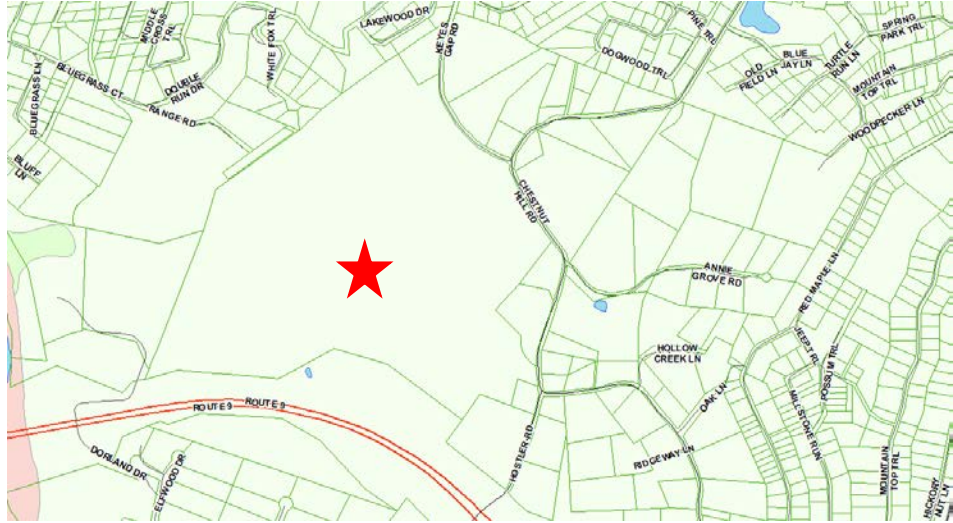
11. Non-Actionable Correspondence. None

Mr. Fisher motioned to adjourn the meeting at 7:25 PM with no objections.

Staff Report  
 Jefferson County Planning Commission Meeting  
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**ITEM # 4**

**Public Workshop:** Concept Plan for Chestnut Manor Subdivision (PC File# 18-04), a proposed 19 lot Major Cluster Development including a 49.85 acre green space, per Section 5.7D(2) of the Zoning Ordinance.

APPLICANT:	Daniel Zappe	
OWNER:	Same as above	
DEVELOPER:	Same as above	
SURVEYOR/ENGINEER:	Roberts Land Surveying	
PROPERTY LOCATION:	North side of Route 9 , west side of Chestnut Hill Road	
LEGAL DESCRIPTION:	<p>Tax District: Harpers Ferry (04); Tax Map: 19; Parcels 37, 37.6 &amp; 37.7;          Size: 92.628 acre parcel (excluding DOH ROW and 6.855 acre Lot 1)</p> 	
SURROUNDING PROPERTIES:	North: Rural East: Rural	South: Rural West: Rural
LOT AREA:	126 Acres	
PROPOSED ACTIVITY:	19 Lot Major Cluster Subdivision	
APPROVALS:		
Concept Plan	Submitted:	02/09/2018
	Staff Review Meeting:	02/13/2018
	County Planner Approval:	04/03/2018
	County Engineer Approval:	02/26/2018
	Zoning Administrator Approval:	03/28/2018 with one outstanding comment

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**1. Summary of Request**

The applicant is proposing a cluster subdivision with 18 residential lots and a 49.85 acre green space/residue. The proposed subdivision also includes the reconfiguration of 2 existing lots (Parcels 37.6 and 37.7) into one additional lot that will also access the internal subdivision road.

All 19 lots (18 from the cluster plus the one merged existing lot) will access off an internal subdivision road from Chestnut Hill Road. A stormwater tract is proposed to be separate from the green space and will also have access to this internal road. The required green space/residue is proposed to have its own access off Keyes Gap Road.

Required green space for this cluster subdivision is 49.85 acres for green space per the 2/15/18 memo from the Zoning Administrator.

**2. Zoning Ordinance Cluster Requirements**

Section 5.7D(2) of the Jefferson County WV Zoning and Land Development Ordinance states that the purpose of the cluster provisions is to “encourage the conservation of farmland in the Rural Zoning District by planning the residential development allowed in the zone to provide for the best obtainable siting, access and location of lots on a tract while retaining a portion of the property as green space” and to “provide for a well planned development while minimizing the use of prime agricultural land.” For this reason, the Zoning Ordinance requires the submission of soils information as a part of the Concept Plan. In this particular case, the applicant proposes to preserve the hillsides and natural slopes (per Sec. 22.504 Protection of Resources of the Subdivision and Land Development Regulations) and proposes to create the lots on the higher quality soils (described in table below).

Article 2 of the Zoning and Land Development Ordinance, “Definitions” includes the following definition for “Green Space”:

“Land required to be set aside under Section 5.7 Cluster Provisions, for the purpose of retaining active or passive farmland, *wooded or forested areas, significant natural or environmentally sensitive features*, historic structures and/or core battlefields, and parks. Green space may include open space as defined herein.

Land indicated as green space in a cluster development shall be permitted to maintain one single family dwelling unit, and an accessory agricultural dwelling unit (if it meets the qualifications), and may be in private ownership or a homeowner’s association.” (*emphasis added*)

The proposed green space consists of the steeper wooded areas of the property. The green space, as well as portions of some of the lots, includes portions of the property in excess of 25% slopes which will be required to address the requirements of Table 22.504 of the Subdivision Regulations. The Hillside Development section of the Subdivision Regulations requires the retention of a percentage of the land to be maintained in a substantially natural condition (no clearing, cutting, filling) for all areas with a weighted average slope of land greater than 10%. A detailed analysis of this will be required with the Preliminary Plat and natural preservation areas will be required to be delineated on the Preliminary and Final Plats.

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**3. Staff Determination of Application Sufficiency and Concept Plan Completeness Review**

The Concept Plan application includes both the graphic depiction of the proposed layout and the data required by both the Jefferson County Zoning and Land Development Ordinance and Subdivision and Land Development Regulations. In accordance with the amended Subdivision Regulations, the Concept Plan process incorporates a sufficiency and completeness review in a single step. After two reviews, Staff found the submitted plan “sufficient” (i.e. meeting all requirements of Section 24.106 of the Jefferson County Subdivision and Land Use Regulations). These requirements, as well as the current review status for each requirement for the Chestnut Manor application, are provided below:

<b>Required Item from Section 24.106(A-J)</b>	<b>Description</b>	<b>Staff Comments</b>
<b>B. Submission Contents</b>	The submission shall contain the following elements:	
<b>1. General Location</b>	A map or aerial photograph showing an area of 500 feet around the property. Zoning boundaries shall be located on this document.	Provided
<b>2. Concept Plan</b>	A Concept Plan shall be submitted in accordance with the content and formatting guidelines provided in Appendix A, Plan & Plat Standards.	Provided
<b>3. Zoning Information</b>	This shall include: a) Determination of the zoning district in which the proposed project is situated. b) Density calculations. c) Site resource map.	Provided based on Cluster provisions of Rural Zoning District
<b>4. Proposal Description</b>	This site shall be a written description of the proposal with general identification of the number of dwelling units or floor area proposed, commentary, zoning, and development option selected if the development is residential.	Provided
<b>5. Traffic Impact Data</b>	This shall include: a) Average Daily Trip figures for the adjoining or accessible State road. b) Trip generation figures c) Nearest key intersection that will serve the proposed project. A “key intersection” is defined as any intersection with a primary or secondary highway as classified by the current Comprehensive Plan. d) “Highway Problem Areas” according to the current Comprehensive Plan that falls within a one-mile radius of the project.	Provided

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<p><b>Trip Generation</b></p>	<p>In the event trip generation in the peak hour exceeds 100 or the limitation designated in the most current DOH Traffic Engineering Directive, a traffic study may be required which includes generators, etc. unless the West Virginia Division of Highways has created an agreement with the applicant to provide site access improvements that are typically required by a traffic study. This type of study should be performed by a traffic engineering consultant. The effect of phasing the subdivision shall be cumulative.</p>	<p>Trip generation is greater than 100; approval from WVDOH required with Preliminary Plat</p>
<p><b>6. Agency Reviews</b></p>	<p>The reviewing agencies shall conduct reviews of the proposed concept plan. Agency comments shall be received by the Department fourteen (14) days prior to the schedule public workshop. The applicant shall distribute the concept plan to all reviewing agencies no later than 7 days after the review. Reviewing agencies are found in Section 23.203 and 23.204. Applicant shall provide copy of letters sent to outside agencies to the Departments of Planning and Zoning within 7 days of submission of Concept Plan. If any review agency fails to respond, they shall be deemed by these Regulations to have approved the plan.</p>	<p>Letters to required agencies provided; see responses below</p>
<p><b>7. Adjoining Property</b></p>	<p>Accurate list of all properties and owners' addresses adjoining the subject property to be notified by staff of the date of the workshop.</p>	<p>Provided</p>
<p><b>8. Other Data</b></p>	<p>Because this is a cluster subdivision being developed under Section 5.7D(2) of the Zoning Ordinance the Concept Plan is also required to address the following requirements:</p>	<p>See below</p>
	<p>(1) Soils: The cluster plan should minimize the use of the higher quality soils (class I, II and III as designated in the soils classification study) and maximize the use of steeper sloped areas, areas of poorer soils and areas which are otherwise less productive for agricultural uses.</p>	<p>Over 90% of the property falls within 3 soil units:</p> <ul style="list-style-type: none"> <li>• SvF is Class D, not prime farmland and generally has slopes of 25-65%;</li> <li>• WtB is Class B, considered prime farmland and gently rolling; and</li> <li>• WtC is class B, considered farmland of statewide importance with 8-15% slopes.</li> </ul>

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	(2) Surrounding land use and zoning: The cluster plan shall consider the existing land uses and zoning in the vicinity. Generally, new lots which are adjacent to existing development or residential zoning are preferred to creating an isolated cluster of new houses.	The property upon which this cluster is proposed was significantly impacted by the new Route 9. The surrounding area consists of rural residential lots and wooded areas.
<b>9. Other Reviews</b>	Any other staff or agency reviews of the plans.	GIS/Addressing approved subdivision and road names
<b>C. Review Content</b>	The Department and agency reviews shall address the areas indicated in D through G below and any other areas of concern to the agencies.	See below
<b>D. Department</b>	<p>The Department review shall include the following:</p> <ol style="list-style-type: none"> <li>1. Whether the density, use, and plan meet the requirements of the Zoning Ordinance and any other zoning issues that can be identified at the concept plan submission. (Landscaping, for instance, is not generally available at this stage). Staff shall identify conditions that would enable the plan to meet the standards. It shall also identify any other zoning issues the developer shall address in a preliminary plat submittal.</li> <li>2. Staff opinion as to whether the plan meets the site development planning or subdivision criteria of these Regulations. The Department shall review the concept plan for modifications that would improve the plan.</li> </ol>	Staff determined that the proposed Concept Plan meets the requirements of the cluster provisions of the Zoning Ordinance and the Subdivision Regulations with the conditions noted below in “Staff Recommendation”
<b>E. WVDOH</b>	The WVDOH approval is necessary prior to preliminary plat approval. The County defers to the WVDOH requirements and approval.	Noted
<b>F. Traffic Impact</b>	The WVDOH shall determine whether a traffic impact study will be required during the preliminary plat stage.	Defer to WVDOH
<b>G. Public Service</b>	The review shall indicate whether there are existing water and sewer systems in place that can handle the development. If not, the review shall indicate the type or extent of a system that shall be proposed by the developer to best meet the County’s needs in that area of the County.	Subdivision proposed to be served by well and on-site septic systems

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<b>H. Recommended Conditions</b>	All reviews shall contain recommended conditions for moving forward to a site plan or reasons why the plan should be denied.	DOH and Board of Health Approval Required before Preliminary Plat approval
<b>I. Approval</b>	Unless there are reviews indicating that the development cannot conform to the Zoning Ordinance, be serviced by public services, or provide its own utilities, or other factors that make the development impossible, Planning staff shall accept or deny the concept plan as complete.	Planning Staff accepts the Concept Plan as complete.
<b>J. Effect</b>	Upon accepting the application as complete, Planning staff shall place it on the next possible Planning Commission agenda as a public workshop. Staff shall advertise the public workshop in a local newspaper and the applicant shall post notice on the property in accordance with the Subdivision Regulations.	The Concept Plan was scheduled for a Public Workshop consistent with this requirement.

**4. External Agency Reviews**

- Jefferson County GIS/Addressing have the proposed road names under review.

As of this date, no other agency review comments have been received.

**5. Staff Recommendation related to Concept Plan**

The Planning, Zoning and Engineering Staff find the Chestnut Manor Concept Plan to be “complete” based on the information provided related to the criteria above; however, the following standards will need to be addressed prior to approval of the Preliminary Plat.

- a. Note that the front setback in Cluster Subdivision is 25’ as edited on the Concept Plan.
- b. Section 2.3 of the Subdivision and Land Development Regulations, “Subdivision and Site Development Access Management”, Subsection A, “Subdivision Access to Public Roads” states that, “generally”, individual lots in a subdivision shall not have direct access to public roads and must be served by internal subdivision roads unless otherwise approved by the Planning Commission.

Additionally, Sec. 21.103D of the Subdivision Regulations states that “In all districts where the subdivision for residential use is to occur, lots shall only have access via internal subdivision roads, except for rural lots as provided in Section 20.201”. For these reasons, a waiver will be required prior to the approval of the Preliminary Plat to allow the green space/residue lot to have separate access to Keyes Gap Road. The Planning Commission motion should include this as a condition of approval of the Concept Plan.

- c. Section 5.7D(2)(b)(iii) of the Zoning and Land Development Ordinance also requires all clusters of three (3) or more lots to be served by an internal road. Generally a waiver of this standard would require a Zoning Variance approved by the Board of Zoning Appeals; however the Zoning

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Administrator has determined that if the Planning Commission waiver is approved, this variance is not required.

- d. Division of Highways and Board of Health approval are both required prior to Preliminary Plat approval.

Staff recommends approval of the Concept Plan with the conditions noted above which should be included in the Planning Commission motion.

Based on the Zoning Ordinance and Subdivision Regulations, noted above, this project will process as a Major Subdivision and the next step is to process a Preliminary Plat, which will require a Public Hearing. Upon approval of the Preliminary Plat by the Planning Commission, the Final Plat will be administratively reviewed and approved.

#### **6. Planning Commission Direction**

The Concept Plan Public Workshop allows for the Planning Commission and the general public to comment on the proposed plan before complete engineering design and cost are incurred. The Subdivision and Land Development Regulations outline the procedure:

1. The applicant makes a short presentation.
2. Staff explains outside agency comments and whether the plan can meet the standards of the Zoning Ordinance.
3. Public comment is solicited.

Following the applicant's presentation, staff's explanation and the solicitation of public comment, the Planning Commission shall provide direction to the applicant as required under Concept Plan Direction outlined in the Subdivision Regulations. The Planning Commission has the option of providing this direction at the same meeting during which the Concept Plan public hearing takes place, or at a subsequent meeting that occurs within 14 days of the meeting at which the Concept Plan public hearing is closed.

The Subdivision and Land Development Regulations outline the direction to be provided to the applicant:

“The Planning Commission shall direct the preparation of a Preliminary Plat subject to conditions to be addressed in the application. The purpose of this review is to guide the developer so that when the Preliminary Plat is formally reviewed by the staff, there should not be a whole range of issues being raised for the first time. The developer shall cite conditions and demonstrate that they have been met or otherwise addressed.”

It should be noted that the direction provided to the applicant in the Concept Plan Public Workshop shall be applicable for a period of two years, with the provision that any amendments to the Subdivision and Land Development Regulations or the Zoning and Land Development Ordinance in the second year shall be applicable.



JEFFERSON COUNTY, WEST VIRGINIA

Departments of Planning and Zoning
116 East Washington Street, P.O. Box 338
Charles Town, WV 25414

File Number: 18-051
Staff Initials: rlg
Total Fee(s): none due at this time

www.jeffersoncountywv.org/government/departments/planning-and-zoning-department.html

Email: planningdepartment@jeffersoncountywv.org
zoning@jeffersoncountywv.org

Phone: (304) 728-3228
Fax: (304) 728-8126

Concept Plan Review Checklist

The Concept Plan submittal shall be on white paper and shall show in simple form the proposed project. Further details can be found in the checklist below. The Concept Plan shall be accompanied by a tract location map and a tentative list of restrictive covenants and conditions or a tentative statement of project objectives, rules, and regulations.

In order to determine sufficiency, this application and a copy of the Concept Plan must be submitted to the Jefferson County Departments of Planning and Zoning 45 days prior to the next regularly scheduled Planning Commission meeting. Please refer to Article 24 of the Subdivision Regulations for Concept Plan Requirements.

Property Owner Information

Name: DANIEL J. ZAPPE
Mailing Address: 1195 CHESTNUT HILL ROAD HARPERS FERRY WV 25425
Phone Number: 302-670-2777 Email: zappeclanereagan.com

Registered Engineer(s), Surveyor(s), or Consultant(s) Information

Name: ROBERTS LAND SURVEYING
Mailing Address: 2068 PALMER ROAD HEDGESVILLE WV 25427
Phone Number: 304-671-5406 Email: miker002395@frontier.com

Physical Property Details

Physical Address: 890 CHESTNUT HILL ROAD
City: HARPERS FERRY State: WV Zip Code: 25425
Tax District: HARPERS FERRY Map No: 13 Parcel No: 37; 37.6 & 37.7
Parcel Size: 126 AC. Deed Book: 1157 Page No: 79

Zoning District (please check one)

Table with 8 columns of zoning districts: Residential Growth (RG), Industrial Commercial (IC), Rural (R), Residential-Light Industrial-Commercial (RLIC), Village (V), Neighborhood Commercial (NC), General Commercial (GC), Highway Commercial (HC), Light Industrial (LI), Major Industrial (MI), Planned Neighborhood Development (PND), Office/Commercial Mixed-Use (O/C). Includes checkboxes and a 'RECEIVED' stamp.

RETURNED TO Roberts Land Surveying DATE 3/15/18

Signature of Property Owner

Date: 2/9/18

RECEIVED

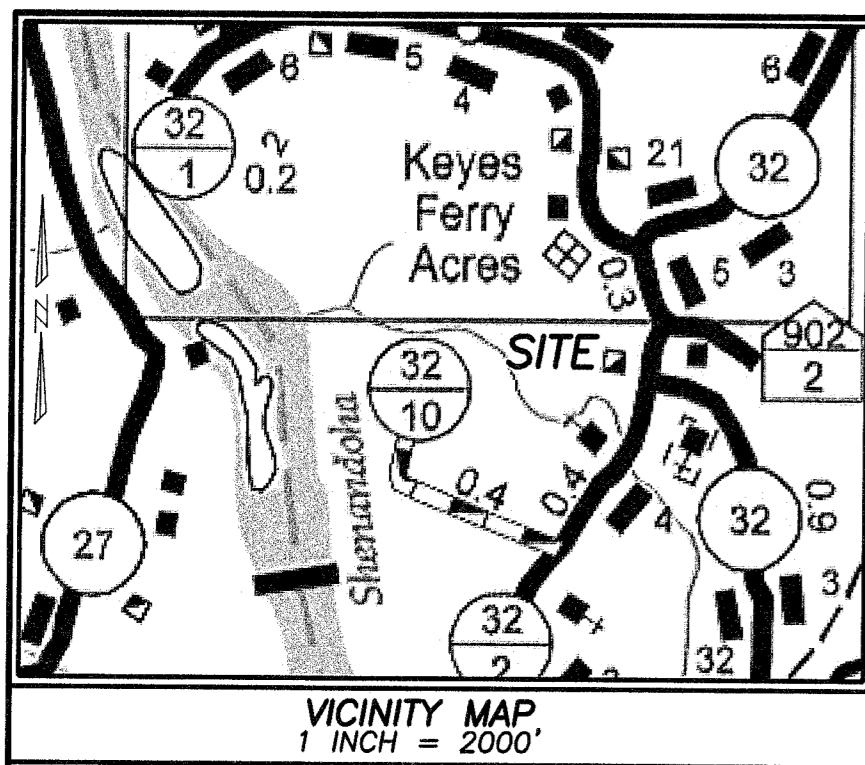
MAR 27 2018

FEB 22 2018

Signature of Property Owner

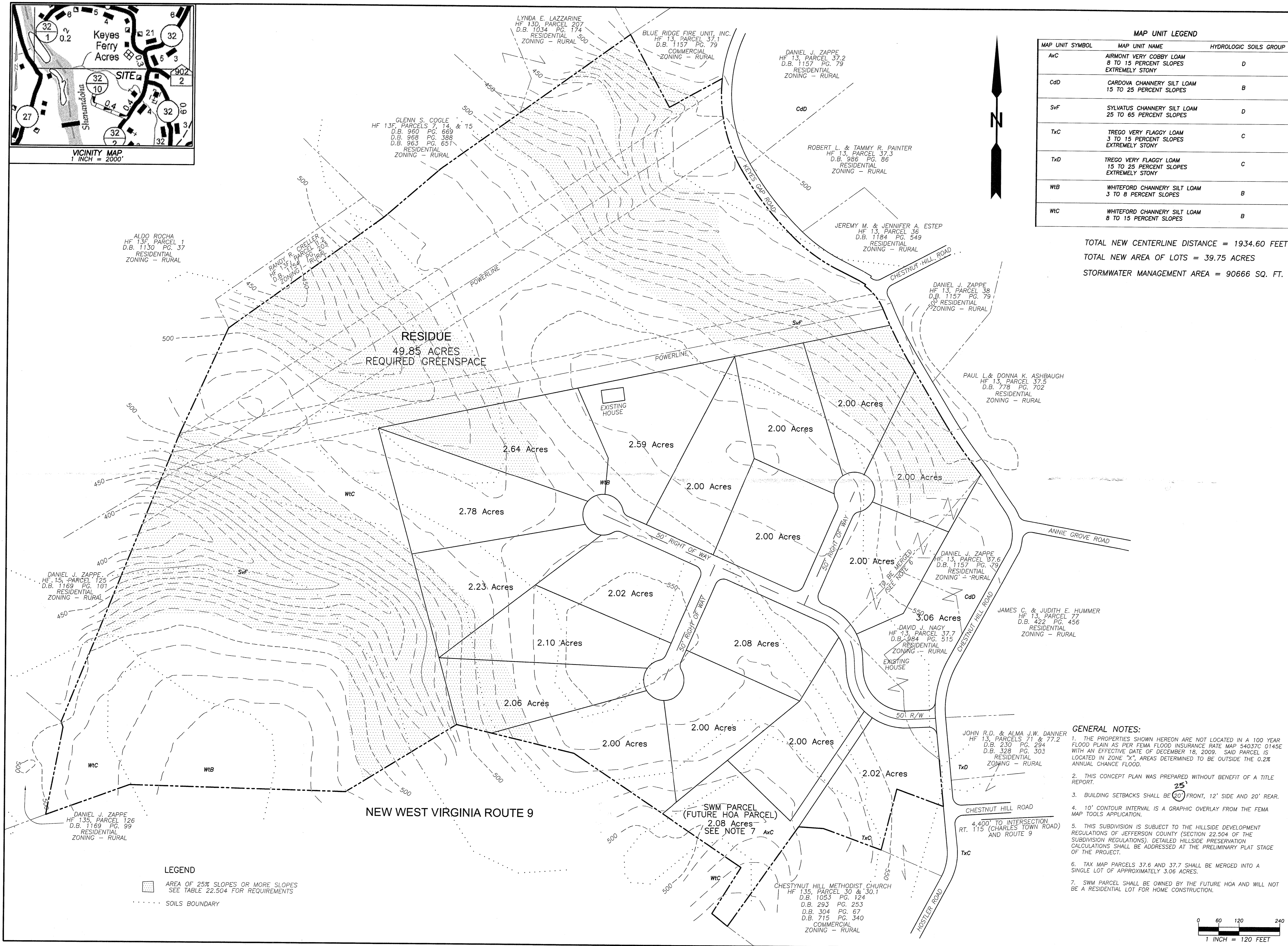
Date



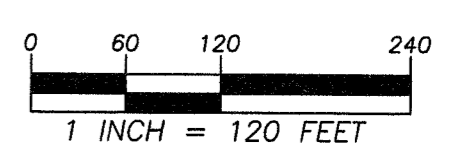


MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOILS GROUP
AxC	AIRMONT VERY COBBY LOAM 8 TO 15 PERCENT SLOPES EXTREMELY STONY	D
CdD	CARDOVA CHANNERY SILT LOAM 15 TO 25 PERCENT SLOPES	B
SvF	SYLVATUS CHANNERY SILT LOAM 25 TO 65 PERCENT SLOPES	D
TxC	TREGO VERY FLAGGY LOAM 3 TO 15 PERCENT SLOPES EXTREMELY STONY	C
TxD	TREGO VERY FLAGGY LOAM 15 TO 25 PERCENT SLOPES EXTREMELY STONY	C
WtB	WHITEFORD CHANNERY SILT LOAM 3 TO 8 PERCENT SLOPES	B
WtC	WHITEFORD CHANNERY SILT LOAM 8 TO 15 PERCENT SLOPES	B

TOTAL NEW CENTERLINE DISTANCE = 1934.60 FEET  
 TOTAL NEW AREA OF LOTS = 39.75 ACRES  
 STORMWATER MANAGEMENT AREA = 90666 SQ. FT.



- GENERAL NOTES:**
- THE PROPERTIES SHOWN HEREON ARE NOT LOCATED IN A 100 YEAR FLOOD PLAIN AS PER FEMA FLOOD INSURANCE RATE MAP 54037C 0145E WITH AN EFFECTIVE DATE OF DECEMBER 18, 2009. SAID PARCEL IS LOCATED IN ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.
  - THIS CONCEPT PLAN WAS PREPARED WITHOUT BENEFIT OF A TITLE REPORT.
  - BUILDING SETBACKS SHALL BE 20' FRONT, 12' SIDE AND 20' REAR.
  - 10' CONTOUR INTERVAL IS A GRAPHIC OVERLAY FROM THE FEMA MAP TOOLS APPLICATION.
  - THIS SUBDIVISION IS SUBJECT TO THE HILLSIDE DEVELOPMENT REGULATIONS OF JEFFERSON COUNTY (SECTION 22.504 OF THE SUBDIVISION REGULATIONS). DETAILED HILLSIDE PRESERVATION CALCULATIONS SHALL BE ADDRESSED AT THE PRELIMINARY PLAT STAGE OF THE PROJECT.
  - TAX MAP PARCELS 37.6 AND 37.7 SHALL BE MERGED INTO A SINGLE LOT OF APPROXIMATELY 3.06 ACRES.
  - SWM PARCEL SHALL BE OWNED BY THE FUTURE HOA AND WILL NOT BE A RESIDENTIAL LOT FOR HOME CONSTRUCTION.



**ROBERTS LAND SURVEYING**  
 2068 PALMER ROAD - HEDGESVILLE, WV 25427  
 304-671-5406  
 miker002395@frontier.com

**CONCEPT PLAN**  
**CHESTNUT MANOR**  
 PROPERTY OF  
**DANIEL J. ZAPPE**  
 DEED BOOK 1157 PAGE 79 ~ TAX MAP 13, PARCEL 37  
 HARPERS FERRY DISTRICT ~ JEFFERSON COUNTY, WV

**RECEIVED**  
 JEFFERSON COUNTY  
 PLANNING, ZONING AND ENGINEERING  
 MAR 27 2018

REV.	DATE	COUNTY COMMENTS
02-20-18		
02-24-18		

DATE: 01-18-18  
 DRAWN: RLW  
 CHECKED: MSR  
 SCALE: 1"=120'  
 DWG NO. 17-147  
 SHEET 1 OF 1



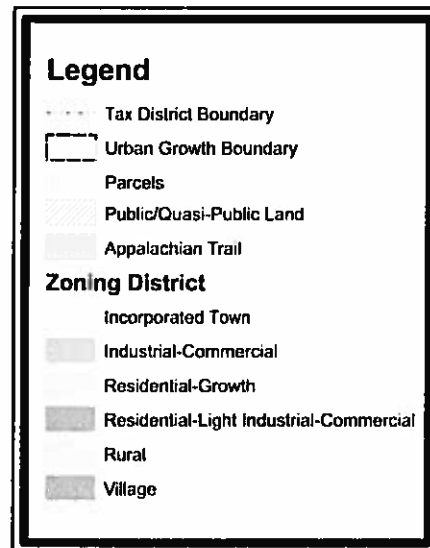
# CHESTNUT MANOR ZONING INFORMATION

a.) SUBJECT PROPERTY IS CURRENTLY ZONED "RURAL"

b.) DENSITY CALCULATIONS FOR CLUSTER DEVELOPMENT

1988 AREA	122.344
2018 AREA	92.628 PER PB 25 PG 616
19 LOTS AND RESIDUE ON 96.41 AC.(ONE LOT ALREADY USED)	1/4.8 AC.
REQUIRED GREEN SPACE (PER ZONING DETERMINATION)	49.85 AC.
PROVIDED GREEN SPACE	49.85 AC.

c.) ZONING MAP



DATE: 02-20-18  
DRAWN: MSR  
CHECKED: MSR  
SCALE: N/A

**ROBERTS LAND SURVEYING**  
2068 PALMER ROAD – HEDGESVILLE, WV 25427  
304.671.5406      miker002395@frontier.com

# CHESTNUT MANOR PROPOSAL DESCRIPTION

THIS PROJECT PROPOSES NINETEEN (19) SINGLE FAMILY (DETACHED) RESIDENTIAL LOTS AND A RESIDUE PARCEL ON 92.628 ACRES (TAX MAP PARCEL 37) PER PB 25 PG 616, WHICH IS CURRENTLY ZONED "RURAL". THE SINGLE FAMILY LOTS WILL BE A MINIMUM OF 2.00 ACRES IN SIZE AND HAVE FRONTAGE ON INTERIOR CUL-DE-SAC STREETS. THE INTERIOR STREETS WILL ACCESS WV ROUTE 32 (CHESTNUT HILL ROAD), 500 FEET NORTH OF THE INTERSECTION OF WV ROUTE 32 AND WV SECONDARY ROUTE 32/2 (HOSTLER ROAD). THE NINETEEN SINGLE FAMILY LOTS WILL CONTAIN INDIVIDUAL ON-SITE SANITARY DRAINFIELDS AND WATER WELLS.

THE RESIDUE PARCEL IS CURRENTLY UNIMPROVED. ONE 6.85 AC. TRACT (P/O TAX MAP PARCEL 37) HAS PREVIOUSLY BEEN SUBDIVIDED OFF OF THE ORIGINAL TRACT. THE RESIDUE PARCEL CURRENTLY ACCESS WV SECONDARY ROUTE 32 (CHESTNUT HILL ROAD). THE MAXIMUM DENSITY FOR THIS CONCEPT PLAN (TAX MAP PARCEL 37) IS 18 LOTS AND A RESIDUE. TAX MAP PARCELS 37.6 AND 37.7 SHALL BE MERGED TO CREATE A SINGLE LOT OF 3.06 ACRES AND IS NOT PART OF THE CLUSTER DENSITY CALCULATION.

STORM WATER MANAGEMENT FOR THIS PROJECT SHALL BE PROVIDED ON A DRAINAGE EASEMENT AREAS. TO BE LOCATED ON THE PROPOSED LOTS, AS NEEDED. THE PROPOSED SWM PARCEL SHALL BE AN HOA PARCEL AND IS NOT A BUILDABLE RESIDENTIAL LOT. STORM WATER MANAGEMENT DESIGN TO BE PROVIDED DURING THE PRELIMINARY PLAT STAGE.

WVDOH CURRENTLY MAINTAINS A 30' WIDE PRESCRIPTIVE RIGHT OF WAY (15' ON EITHER SIDE OF THE CENTERLINE) ON WV SECONDARY ROUTE 32 (CHESTNUT HILL ROAD). A 10' RIGHT OF WAY RESERVATION WILL BE PROVIDED ALONG THE ROUTE 32 FRONTAGE.

REQUIRED GREEN SPACE FOR THE CLUSTER DEVELOPMENT IS 49.85 (PER ZONING DETERMINATION) ACRES. PROVIDED GREEN SPACE IS 49.85 ACRES. ONE LOT ALREADY EXIST FROM PRIOR DIVISION FROM ORIGINAL PARCEL (PLAT BOOK 25, PAGE 616).

COVENANTS AND RESTRICTIONS FOR THIS PROJECT HAVE NOT YET BEEN DETERMINED AND WILL BE SUBMITTED AS PART OF THE PRELIMINARY PLAN SUBMISSION PACKAGE.

DATE: 03-20-18  
DRAWN: MSR  
CHECKED: MSR  
SCALE: N/A

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# CHESTNUT MANOR TRAFFIC IMPACT DATA

a.) TRAFFIC COUNT (WV ROUTE 32), PER WVDOH AT THE SITE ADT=2,482

b.) PROJECT AVERAGE DAILY TRIP DATA (SINGLE FAMILY - PEAK HOUR)

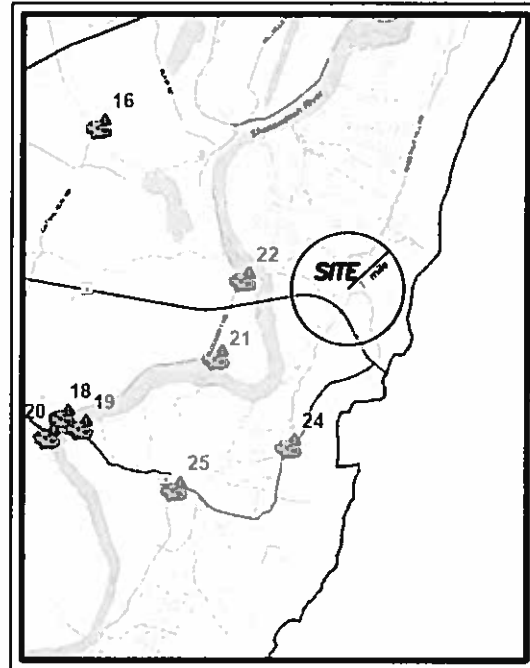
WV SEC. RT. 32 (19 LOTS)  
WV SEC. RT. 32 (RESIDUE)

ADT=152  
ADT=8

c.) THE SUBJECT PROPERTY IS LOCATED ON THE WEST SIDE OF WV SEC. ROUTE 32 (CHESTNUT HILL ROAD), 4,400' NORTH OF THE INTERSECTION OF WV ROUTE 115 (CHARLES TOWN ROAD) AND WV ROUTE 9, WHICH IS THE NEAREST "KEY INTERSECTION".

d.) HIGHWAY PROBLEM AREAS - NONE WITHIN 1 MILE RADIUS OF SITE.

Highway Problem Areas  
Jefferson County, WV



e.) TRIP GENERATION (8X19=152 PEAK HOUR) IS GREATER THAN 100, A TRAFFIC STUDY MAY BE REQUIRED.

DATE: 02-20-18  
DRAWN: MSR  
CHECKED: MSR  
SCALE: N/A

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304.671.5406 miker002395@frontier.com

# CHESTNUT MANOR ADJOINING PROPERTY OWNER INFORMATION

## HARPERS FERRY DISTRICT – TAX MAP 13F

PARCEL 1  
ALDO ROCHA  
525 E. MARKET ST., STE K185  
LEESBURG, VA 20176

PARCELS 7, 14 & 15  
GLENN S & PATRICA A. COGLE  
157 COGLES FIELDS LN.  
HARPERS FERRY, WV 25425

PARCEL 1.2  
RANDY R. CRELLER  
206 BUNNY LN.  
HARPERS FERRY, WV 25425

## HARPERS FERRY DISTRICT – TAX MAP 13

PARCEL 37.1  
BLUE RIDGE FIRE UNIT, INC  
RT. 1 BOX 740  
HARPERS FERRY, WV 25425

PARCEL 37.2, 37.6 & 38  
DANIEL J. ZAPPE  
511 NAULT ROAD  
DOVER, DE 19904

PARCEL 37.3  
ROBERT L. & TAMMY R. PAINTER  
62 KEYES GAP ROAD  
HARPERS FERRY, WV 25425

PARCEL 36  
JEREMY M. & JENNIFER A. ESTEP  
12303 WINCHESTER AVENUE  
BUNKER HILL, WV 25413

PARCEL 37.5  
PAUL L. & DONNA K. ASHBAUGH  
1100 CHESTNUT HILL ROAD  
HARPERS FERRY, WV 25425

PARCEL 37.7  
DAVID J. NAGY  
897 CHESTNUT HILL ROAD  
HARPERS FERRY, WV 25425

## HARPERS FERRY DISTRICT – TAX MAP 13D

PARCEL 207  
LYNDA E. LAZZARINE  
125 LAKEWOOD DRIVE  
HARPERS FERRY, WV 25425

## HARPERS FERRY DISTRICT – TAX MAP 15

PARCEL 71 & 77.2  
JOHN R.D. & ALMA J.W. DANNER  
930 CHESTNUT HILL ROAD  
HARPERS FERRY, WV 25425

PARCEL 30 & 30.1  
CHESTNUT HILL METHODIST CHURCH  
1497 HOSTLER ROAD  
HARPERS FERRY, WV 25425

PARCEL 77  
JAMES C. & JUDITH E HUMMER  
900 CHESTNUT HILL ROAD  
HARPERS FERRY, WV 25425

PARCEL 125 7 126  
DANIEL J. ZAPPE  
1195 CHESTNUT HILL ROAD  
HARPERS FERRY, WV 25425

DATE: 01-30-18  
DRAWN: MSR  
CHECKED: MSR  
SCALE: N/A

**ROBERTS LAND SURVEYING**  
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304.671.5406      miker002395@frontier.com

**From:** [Jessica Gormont](#)  
**To:** [Jennifer Brockman](#); [Rhonda Greenholtz](#); [Jennilee Hartman](#); [Alexandra Beaulieu](#); [Becky Burns](#); [Jonathan Saunders](#)  
**Cc:** [Wendy Schutz](#); [Todd Fagan](#)  
**Subject:** Chestnut Manor Subdivision (DPZE #18-04)  
**Date:** Friday, February 23, 2018 3:51:58 PM  
**Attachments:** [Subdivision Name Approval Letter 20180223.pdf](#)  
[Road Name Approval Letter 20180223.pdf](#)

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Hi all,

Just letting everyone know that the Zappe subdivision (DPZE #18-04) has been submitted and been approved for the name **Chestnut Manor**. They have also been approved for two road names, but need to submit one more to cover all three of their roads.

I'm attaching the Subdivision Name and Road Name approval letters for your files. These letters have already been mailed to the applicant.

If you have any questions, please let me know.

Jessica Gormont, GISP  
GIS Analyst  
Jefferson County GIS/Addressing Office  
Phone: 304-724-8986

Staff Report  
 Jefferson County Planning Commission Meeting  
 April 10, 2018

**ITEM #5**

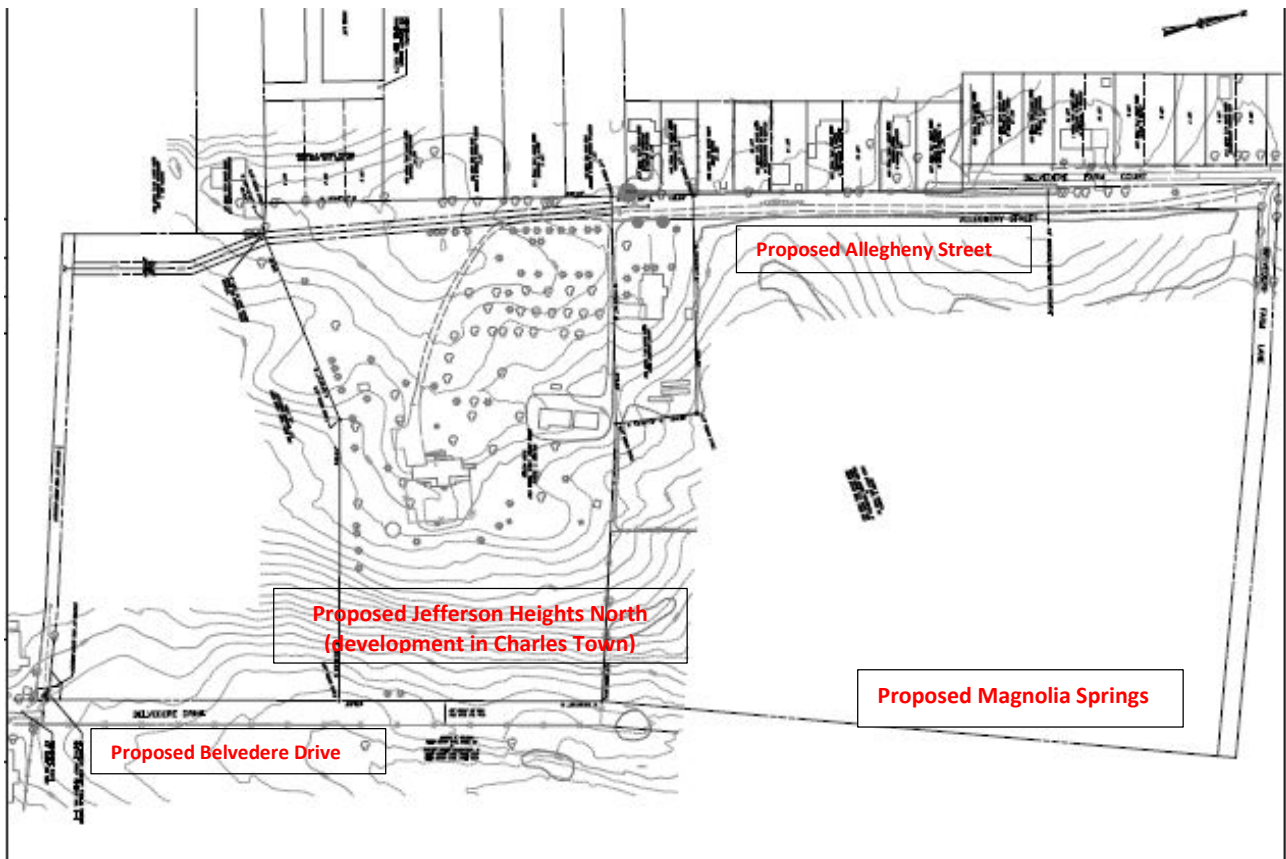
**Public Workshop:** Concept Plan for Magnolia Springs Subdivision. (PC File# 18-05) A proposed 301 lot Major Residential Subdivision.

APPLICANT:	Belvedere Family Trust C/O Walter J. III & William K. Truettner
OWNER:	Same as above
DEVELOPER:	Same as above
SURVEYOR/ENGINEER:	Gordon
PROPERTY LOCATION:	West side of Rte. 340 (Berryville Pike), East side of Belvedere Farm Lane
LEGAL DESCRIPTION:	Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6; Zoned: Residential Growth; Size: 67.8 acres.
SURROUNDING PROPERTIES:	The properties are surrounded by residential lots within the town limits of Charles Town and small single family lots in the unincorporated area. The property to the north is zoned commercial in Charles Town.
LOT AREA:	67.8+/- Acres
PROPOSED ACTIVITY:	301 Lot Major Subdivision
Approvals	
Concept Plan	Submitted: 02/21/2018 Staff Review Meeting: 02/26/2018 County Planner Approval: 03/05/2018 County Engineer Approval: 02/26/2018 Zoning Administrator Approval: 02/26/2018

Staff Report  
Jefferson County Planning Commission Meeting  
April 10, 2018

**1. Summary of Request**

The applicant is proposing a 301 lot Single Family (Detached) Residential Major Subdivision with stormwater management and open space areas, associated utilities and sidewalks on this 67.8 acre property zoned Residential Growth within the Charles Town Urban Growth Boundary. A neighboring 9.0 acre property to the west (shown below), located within the City of Charles Town, has preliminary approval for a 96 unit apartment complex (in one or more buildings) and a 35 unit townhouse complex (Jefferson Heights North). This development is approved to construct a new road to be known as Allegheny Street which will go north from the development within an existing 40 foot right-of-way that crosses the Belvedere Family Trust Property, paralleling a part of Belvedere Farm Court, to Euclid Avenue. It will also construct a road to be known as Belvedere Drive which will go south from that development within another existing 40 foot right-of-way across the Belvedere Family Trust Property.



The roads constructed as a part of Jefferson Heights North will be built to city street standards and the rights-of-way will be required to be widened to 50 feet as a part of the Magnolia Springs development. Sections of roads constructed as a part of Magnolia Springs will be built to County road standards and will integrate with the city streets as shown in the approved plans. Section 21.102A of the Jefferson County Subdivision and Land Development Regulations requires that any proposed subdivision that is not adjacent to a public highway shall be connected to a public highway by rights-of-way and roads that meet the standards required within the subdivision.

**Staff Report**  
Jefferson County Planning Commission Meeting  
April 10, 2018

Because Magnolia Springs consists of more than 30 lots, Section 21.102C of the Jefferson County Subdivision Regulations requires a minimum of two access points from existing roads. The two points of external access proposed by the developer of Magnolia Springs will be a road that provides connectivity to Euclid Avenue via Belvedere Farm Court to the north and a road which provides connectivity to Citizens Way to the south. The developer of Magnolia Springs will be required to provide an extra 10 feet of right-of-way along the entire length of the proposed Allegheny Street and to provide a t-intersection for Road 7 within the right-of-way, but will only need to construct the portion from their first internal subdivision road (Road 1) to Euclid Avenue. The developer will need to confirm that 50 feet of right-of-way exists in this area or may be required to obtain a waiver from this requirement. The developer will also be required to provide an additional 10 feet of right-of-way along the proposed Belvedere Drive and to interconnect with this road (Road 14). The connection to Citizen's Way will require crossing through WV DOH right-of-way created for the intersection of US 340 and WV 9.

All 301 Lots will access off multiple internal subdivision roads, some of which are proposed to be cul-de-sacs and some of which provide connectivity to adjacent properties. When staff met with the applicant during the Pre-Proposal Conference (PPC), staff indicated that it would not support proposed cul-de-sacs for roads currently identified as Road 7 and Road 14. The revised Concept Plan currently shows these roads as t-turnarounds, which are permitted by the County; however, staff recommends that the Planning Commission require the t-turnarounds to be located within the future road alignments for Allegheny Street and Belvedere Drive. The proposed interconnectivity of Road 8 should be further discussed with the developer of Jefferson Heights North and city staff. Roads 2 and 4 provide the required future connections to vacant adjoining land to the north which is zoned General Commercial within the City of Charles Town.

The applicant has indicated that the design as proposed in the Concept Plan requires four waivers which will require Public Hearings by the Planning Commission and require separate approval for each request. One waiver relates to the applicants' proposal to use open ditch road sections throughout the development instead of curb and gutters. The merits of this will be addressed in the waiver staff report. The need for curb and gutter along Allegheny Street and Belvedere Drive should be discussed during this waiver request. Sidewalks are required along one side of streets for all subdivisions in all zone districts within the platted street right-of-way, a minimum of one foot from the property line.

The property is also crossed by an intermittent stream which is proposed to be included within one of the open space areas. Parkland is required for a Major Subdivision of this type, a portion of which may be classified as open space. This project, per Section 21.105 of the Subdivision and Land Development Regulations, requires an estimated 7% of the property to be dedicated to parkland (based on density of residential area, if the waiver for lot width is approved), with no more than 60% of the required open space to be dedicated as passive open space. This calculation will be finalized with the Preliminary Plat.

## **2. Staff Determination of Application Sufficiency and Concept Plan Completeness Review**

In accordance with the amended Subdivision Regulations, the Concept Plan process incorporates a sufficiency and completeness review in a single step. Staff found the submitted plan "sufficient" (i.e.

Staff Report  
 Jefferson County Planning Commission Meeting  
 April 10, 2018

meeting all requirements of Section 24.106 of the Jefferson County Subdivision and Land Use Regulations). These requirements, as well as the current review status for each requirement for the Magnolia Springs application, are provided below:

Required Item from Section 24.106(A-J)	Description	Status
<b>B. Submission Contents</b>	The submission shall contain the following elements:	
<b>1. General Location</b>	A map or aerial photograph showing an area of 500 feet around the property. Zoning boundaries shall be located on this document.	Provided
<b>2. Concept Plan</b>	A Concept Plan shall be submitted in accordance with the content and formatting guidelines provided in Appendix A, Plan & Plat Standards.	Provided
<b>3. Zoning Information</b>	This shall include: <ul style="list-style-type: none"> <li>a) Determination of the zoning district in which the proposed project is situated.</li> <li>b) Density calculations.</li> <li>c) Site resource map.</li> </ul>	Provided based on Residential Growth Zoning
<b>4. Proposal Description</b>	This site shall be a written description of the proposal with general identification of the number of dwelling units or floor area proposed, commentary, zoning, and development option selected if the development is residential.	Provided
<b>5. Traffic Impact Data</b>	This shall include: <ul style="list-style-type: none"> <li>a) Average Daily Trip figures for the adjoining or accessible State road.</li> <li>b) Trip generation figures</li> <li>c) Nearest key intersection that will serve the proposed project. A “key intersection” is defined as any intersection with a primary or secondary highway as classified by the current Comprehensive Plan.</li> <li>d) “Highway Problem Areas” according to the current Comprehensive Plan that falls within a one-mile radius of the project.</li> </ul>	Provided
<b>Trip Generation</b>	In the event trip generation in the peak hour exceeds 100 or the limitation designated in the most current DOH Traffic Engineering Directive, a traffic study will be required which includes generators, etc. unless the West Virginia Division of Highways has created an agreement with the applicant to provide site access improvements that are typically required	Trip generation is greater than 100; approval from WVDOH required with Preliminary Plat

Staff Report  
 Jefferson County Planning Commission Meeting  
 April 10, 2018

	by a traffic study. This type of study should be performed by a traffic engineering consultant. The effect of phasing the subdivision shall be cumulative.	
<b>6. Agency Reviews</b>	The reviewing agencies found in Section 23.203 and 23.204 shall conduct reviews of the proposed concept plan. Applicant shall provide copy of letters sent to outside agencies to the Departments of Planning and Zoning within 7 days of submission of Concept Plan. If any review agency fails to respond, they shall be deemed by these Regulations to have approved the plan.	Letters to required agencies provided; see responses below
<b>7. Adjoining Property</b>	Accurate list of all properties and owners' addresses adjoining the subject property to be notified by staff of the date of the workshop.	Provided
<b>8. Other Data</b>	Any other data or information the applicant believes will assist in the review.	
<b>9. Other Reviews</b>	Any other staff or agency reviews of the plans.	GIS/Addressing approved subdivision and road names
<b>C. Review Content</b>	The Department and agency reviews shall address the areas indicated in D through G below and any other areas of concern to the agencies.	See below
<b>D. Department</b>	The Department review shall include the following: <ol style="list-style-type: none"> <li>1. Whether the density, use, and plan meet the requirements of the Zoning Ordinance and any other zoning issues that can be identified at the concept plan submission. (Landscaping, for instance, is not generally available at this stage). Staff shall identify conditions that would enable the plan to meet the standards. It shall also identify any other zoning issues the developer shall address in a preliminary plat submittal.</li> <li>2. Staff opinion as to whether the plan meets the site development planning or subdivision criteria of these Regulations. The Department shall review the concept plan for modifications that would improve the plan.</li> </ol>	Staff determined that the proposed Concept Plan has met the requirements of the Zoning Ordinance and the Subdivision Regulations
<b>E. WVDOH</b>	The WVDOH approval is necessary prior to preliminary plat approval. The County defers to the WVDOH requirements and approval.	Noted

Staff Report  
 Jefferson County Planning Commission Meeting  
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<b>F. Traffic Impact</b>	The WVDOH shall determine whether a traffic impact study will be required during the preliminary plat stage.	Defer to WVDOH
<b>G. Public Service</b>	The review shall indicate whether there are existing water and sewer systems in place that can handle the development. If not, the review shall indicate the type or extent of a system that shall be proposed by the developer to best meet the County's needs in that area of the County.	Subdivision proposed to be served by city water and sewer systems
<b>H. Recommended Conditions</b>	All reviews shall contain recommended conditions for moving forward to a site plan or reasons why the plan should be denied.	DOH and Utility provider approval Required before Preliminary Plat approval
<b>I. Approval</b>	Unless there are reviews indicating that the development cannot conform to the Zoning Ordinance, be serviced by public services, or provide its own utilities, or other factors that make the development impossible, Planning staff shall accept or deny the concept plan as complete.	Planning Staff accepts the Concept Plan as complete.
<b>J. Effect</b>	Upon accepting the application as complete, Planning staff shall place it on the next possible Planning Commission agenda as a public workshop. Staff shall advertise the public workshop in a local newspaper and the applicant shall post notice on the property in accordance with the Subdivision Regulations.	The Concept Plan was scheduled for a Public Workshop consistent with this requirement.

**3. External Agency Reviews (attached)**

- Office of GIS/Addressing approval of road names is attached.
- Office of Sheriff/Treasurer of Jefferson has responded to state that they will handle any law enforcement demands required by this development.
- Jefferson County Board of Education Transportation Department provided comments requesting a discussion with the Magnolia Springs developer regarding whether school bus service within the community is be intended and proposed potential locations for bus stop locations. They also provided Jefferson County Schools "Subdivision Guidelines" for use by the developer which staff has forwarded to the engineer.
- WVDOH has responded that until a Traffic Study is complete, the review of the subdivision cannot be completed. Access via Citizens way may be possible with additional encroachment permits and/or agreements for construction and maintenance.

As of this date, no other agency review comments have been received. If additional comments are received, they will be provided to the Planning Commission for their consideration.

**Staff Report**  
Jefferson County Planning Commission Meeting  
April 10, 2018

- a. An additional 10' of right-of-way shall be dedicated along the existing 40' of rights-of-way where Allegheny Street and Belvedere Drive will be constructed.
- b. The developer shall confirm that 50 feet of right-of-way exists from their first internal subdivision road (Road 1) to Euclid Avenue to conform to County standards or may be required to obtain a waiver from this requirement.
- c. The t-turnarounds for Roads 7 and 14 shall be located with the road right-of-way for Allegheny Street and Belvedere Drive.

Based on the Subdivision Regulations, noted above, this project will process as a Major Subdivision and the next step is to process a Preliminary Plat.

**5. Planning Commission Direction**

The Concept Plan Public Workshop allows for the Planning Commission and the general public to comment on the proposed plan before complete engineering design and cost are incurred. The Subdivision and Land Development Regulations outline the procedure:

1. The applicant makes a short presentation.
2. Staff explains outside agency comments and whether the plan can meet the standards of the Zoning Ordinance.
3. Public comment is solicited.

Following the applicant's presentation, staff's explanation and the solicitation of public comment, the Planning Commission shall provide direction to the applicant as required under Concept Plan Direction outlined in the Subdivision Regulations. The Planning Commission has the option of providing this direction at the same meeting during which the Concept Plan public hearing takes place, or at a subsequent meeting that occurs within 14 days of the meeting at which the Concept Plan public hearing is closed.

The Subdivision and Land Development Regulations outline the direction to be provided to the applicant:

“The Planning Commission shall direct the preparation of a Preliminary Plat subject to conditions to be addressed in the application. The purpose of this review is to guide the developer so that when the Preliminary Plat is formally reviewed by the staff, there should not be a whole range of issues being raised for the first time. The developer shall cite conditions and demonstrate that they have been met or otherwise addressed.”

It should be noted that the direction provided to the applicant in the Concept Plan Public Workshop shall be applicable for a period of two years, with the provision that any amendments to the Subdivision and Land Development Regulations or the Zoning and Land Development Ordinance in the second year shall be applicable.



JEFFERSON COUNTY, WEST VIRGINIA

Departments of Planning and Zoning
116 East Washington Street, P.O. Box 338
Charles Town, WV 25414

File Number: 18-05
Staff Initials: SW
Total Fee(s): 0

www.jeffersoncountywv.org/government/departments/planning-and-zoning-department.html

Email: planningdepartment@jeffersoncountywv.org
zoning@jeffersoncountywv.org

Phone: (304) 728-3228
Fax: (304) 728-8126

Concept Plan Review Checklist

The Concept Plan submittal shall be on white paper and shall show in simple form the proposed project. Further details can be found in the checklist below. The Concept Plan shall be accompanied by a tract location map and a tentative list of restrictive covenants and conditions or a tentative statement of project objectives, rules, and regulations.

In order to determine sufficiency, this application and a copy of the Concept Plan must be submitted to the Jefferson County Departments of Planning and Zoning 45 days prior to the next regularly scheduled Planning Commission meeting. Please refer to Article 24 of the Subdivision Regulations for Concept Plan Requirements.

Property Owner Information

Name: Belvedere Farm Family Trust c/o Walter J III & William K Truettner
Mailing Address: P.O. Box 247; Crested Butte, CO 81224
Phone Number: 304-901-4931 Email: hwilson@hillcrestrealty.us

Registered Engineer(s), Surveyor(s), or Consultant(s) Information

Name: GORDON
Mailing Address: 148 S. Queen Street, Suite 201; Martinsburg, WV 25401
Phone Number: 304-725-8456 Email: cwallen@gordon.us.com

Physical Property Details

Physical Address: 76 Belvedere Farm Lane; Charles Town, WV 25414
City: Charles Town State: WV Zip Code:
Tax District: Charles Town (2) Map No: 10 Parcel No: 8 & 8.6
Parcel Size: 124.45+/- Total Deed Book: 1132 Page No: 301

Zoning District (please check one)

Grid of zoning districts with checkboxes: Residential Growth (RG), Industrial Commercial (IC), Rural (R), Residential-Light Industrial Commercial (RLIC), Village (V), Neighborhood Commercial (NC), General Commercial (GC), Highway Commercial (HC), Light Industrial (LI), Major Industrial (MI), Planned Neighborhood Development (PND), Office/Commercial Mixed-Use (O/C). Includes a 'RECEIVED' stamp and a signature.

RECEIVED
FEB 21 2018
JEFFERSON COUNTY PLANNING, ZONING & ENGINEERING
Place Received Date Stamp Here

Signature of Property Owner: [Handwritten Signature]
Date: 2/14/18

Signature of Property Owner
Date

	1st Review	2nd Review	3rd Review	4th Review
Submittal Date	2/21/18			
County Engineer	2/24/18 CAJ			
Zoning Administrator	2/26/18 OK			
County Planner	2/26/18 JMB			
Return Date				

**County Engineer Approval Stamp**

*Approved/Denied by a vote of \_\_\_\_\_ for and \_\_\_\_\_ against, this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.*

**Approved**

**Denied**

***Direction Given/Planning Commission Comments***

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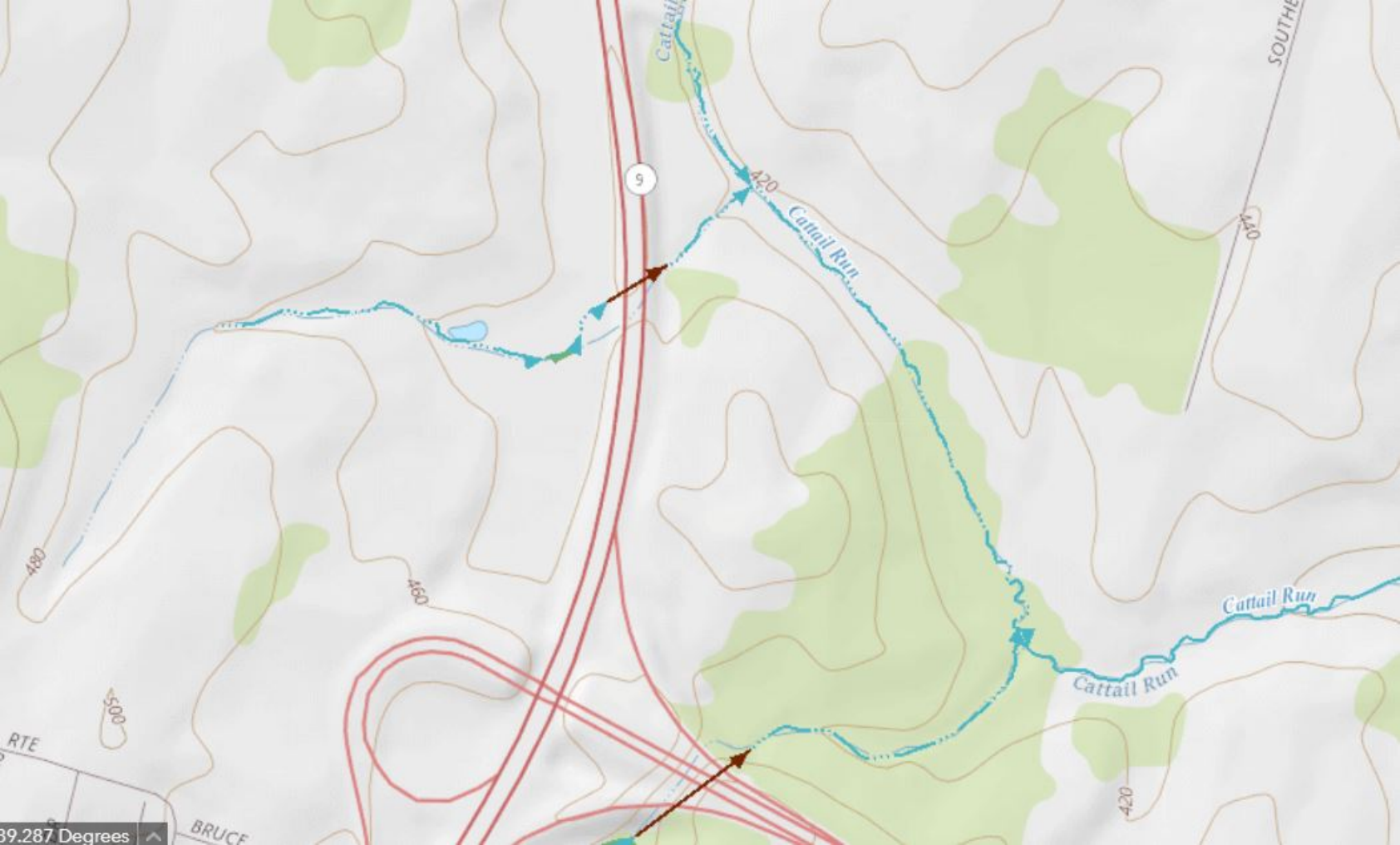
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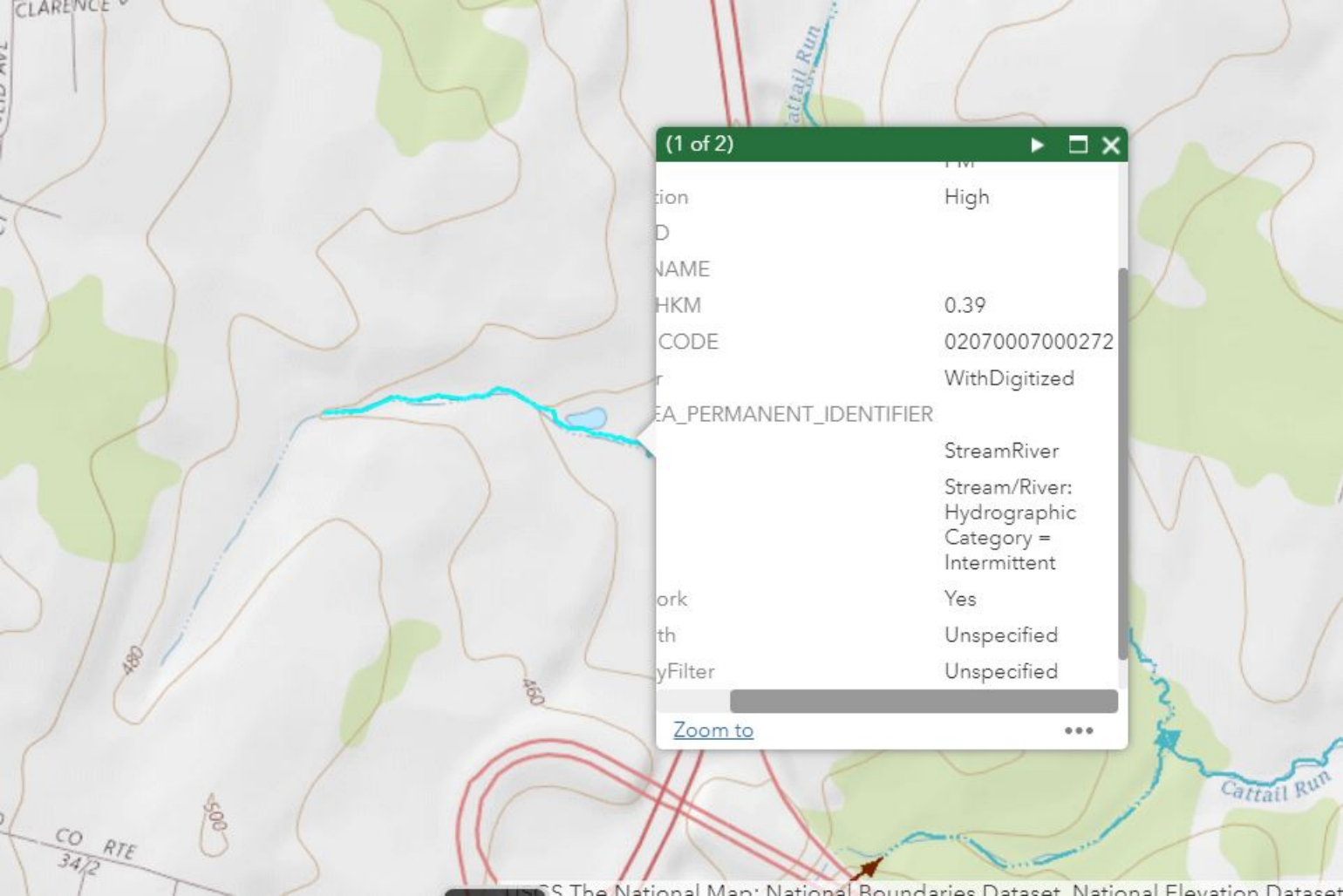
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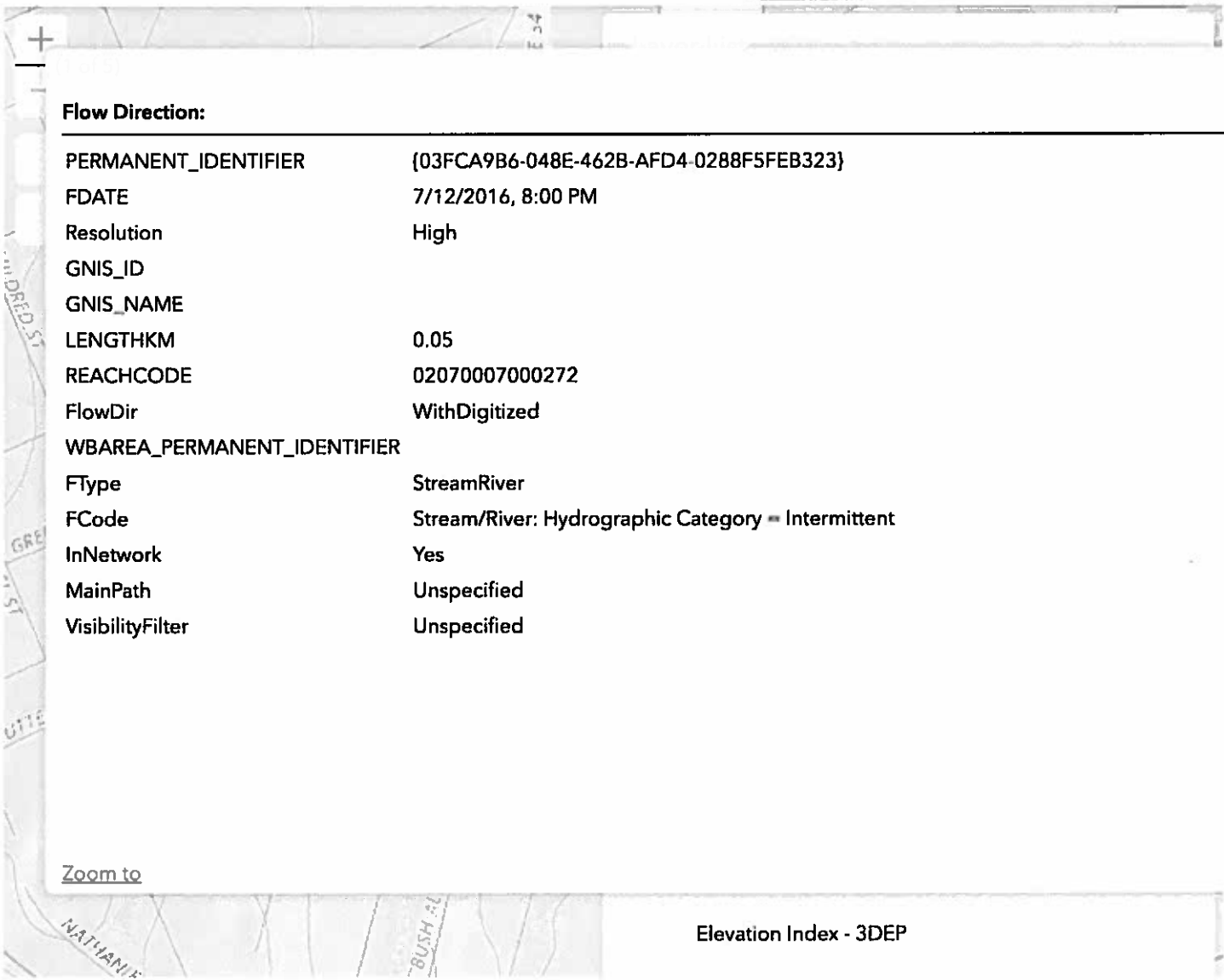


(1 of 2) ▶ □ ×

Position	High
ID	
NAME	
HKM	0.39
CODE	02070007000272
WithDigitized	WithDigitized
AREA_PERMANENT_IDENTIFIER	
StreamRiver	StreamRiver
Stream/River: Hydrographic Category =	Intermittent
Work	Yes
With	Unspecified
Filter	Unspecified

[Zoom to](#) ...

▼ Find address or place 🔍



**Flow Direction:**

PERMANENT_IDENTIFIER	{03FCA9B6-048E-462B-AFD4-0288F5FEB323}
FDATE	7/12/2016, 8:00 PM
Resolution	High
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GNIS_NAME	
LENGTHKM	0.05
REACHCODE	02070007000272
FlowDir	WithDigitized
WBAREA_PERMANENT_IDENTIFIER	
FType	StreamRiver
FCode	Stream/River: Hydrographic Category = Intermittent
InNetwork	Yes
MainPath	Unspecified
VisibilityFilter	Unspecified

[Zoom to](#)

- Elevation Index - 3DEP
- Elevation Contours
- Imagery (NAIP Plus)

Scale: 1:9,028  
Zoom Level: 16



-77.850 39.289 Degrees



PEM5A



U.S. Fish &amp; Wildlife Service

# National Wetlands Inventory

Ecological Services

Enter Classification code:  (Example: **L1UB1Hx**)

Optional: For geographically specific information\*, please enter a State code:  (Example: **TX** for Texas)

[CLICK HERE TO DECODE](#)

Description for code R4SBC:

- R** System **RIVERINE**: The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.
- 4** Subsystem **INTERMITTENT**: This Subsystem includes channels that contain flowing water only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.
- SB** Class **STREAMBED**: Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.
- C** Water Regime **Seasonally Flooded**: Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

Other Modifier(s):





# JEFFERSON COUNTY, WEST VIRGINIA

DEPARTMENT OF ENGINEERING, PLANNING, & ZONING

GIS / ADDRESSING OFFICE

Todd Fagan, GISP • Manager

116 East Washington Street • Suite 201

Charles Town, WV 25414

Telephone: (304) 724-6759 • FAX: (304) 724-8992

gis@jeffersoncountywv.org



February 23, 2018

NLP Finance, LLC  
c/o Hunter Wilson  
PO Box 1875  
Martinsburg, WV 25402

## TO WHOM IT MAY CONCERN:

This certifies that the Jefferson County GIS/Addressing Office has given final approval for the following road names for the **MAGNOLIA SPRINGS** subdivision.

Road Name	Suffix
Ansley	Way
Ashcroft	Drive
Balls Bluff	Drive
Bar Harbor	Terrace
Bell Tower	Lane
Brass Lantern	Way
Cabin Point	Court
Centergate	Drive
Chatwell	Terrace
Clifton	Terrace
Gatehouse	Place
Gumspring	Drive
Hemingway	Terrace
Olander	Court
Saber	Drive
Short Gap	Lane

Please note: Once you have chosen which roads receive which names, our office may require changes to the suffixes depending on the alignment of the roads (for example: "Court" is generally used to reference short enclosed roads that end in a cul-de-sac, so it would be inappropriate for a long road that intersects multiple other roads). Please feel free to contact us at any time if you would like help in determining which suffixes would be approved based on alignments.

All road signs must be purchased through the County's maintenance contract if the roadways are located within the unincorporated area of the County. A plat of the subdivision must be submitted and the GIS/Addressing Office will calculate the fees required for road sign purchase. Fees must be remitted to the GIS/Addressing office prior to the scheduling of road sign installation.

Should you have any questions, please contact the Jefferson County GIS/Addressing Office at (304) 724-6759 or via email at [gis@jeffersoncountywv.org](mailto:gis@jeffersoncountywv.org).

Sincerely,

A handwritten signature in black ink that reads "Jessica Gormont". The signature is written in a cursive style with a long, sweeping horizontal line extending from the end of the name.

Jessica Gormont, GIS Analyst  
Jefferson County GIS/Addressing Office



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

Office of the District Engineer/Manager

District Five

Post Office Box 99 · Burlington, West Virginia 26710-0099 · (304) 289-3521

**Thomas J. Smith, P. E.**  
Secretary of Transportation/  
Commissioner of Highways

March 14, 2018

William H. Gordon Associates, Inc.  
148 South Queen Street, Suite 201  
Martinsburg, WV 25401  
Attn: Chad Wallen

Dear Mr. Wallen:

A concept plan for Magnolia Springs Subdivision at 76 Belvedere Farm Lane, Charles Town, WV was received in this office and a review was conducted.

WVDOH offers the following comments:

- We are working with Kittelson & Associates, Inc. on a scope for the Traffic Impact Study (TIS) on what appears to be the same development with a different name of "Belvedere Farm". Until the TIS is complete, we cannot complete a review of any subdivision plans.
- Citizens Way belongs to WVDOH for a length of 0.57 miles. It has not been constructed beyond its intersection with Crawford Way. Access via Citizens Way may be possible with additional encroachments permits and/or agreements for construction and maintenance.

If you have any further questions or need additional information, please contact me at [trixie.a.willis@wv.gov](mailto:trixie.a.willis@wv.gov) or 304-289-2229.

Sincerely,

A handwritten signature in cursive script that reads "Trixie Willis".

Trixie Willis  
Permit Reviewer

TAW/rl

cc: file



# Office of Sheriff and Treasurer of Jefferson County

Law Enforcement Office  
102 Industrial Blvd  
Kearneysville, WV 25430  
304-728-3205  
Fax: 304-728-3299

Tax Office  
PO Box 9  
Charles Town, WV 25414  
304-728-3220  
Fax: 304-728-4034

*March 13, 2018*

*JC Department of Planning and Zoning  
VIA FACSIMILE and Inner Office Mail  
304-728-8126*

*Re: Magnolia Springs*

*Dear Ms. Brockman:*

*This is in response to the request from Mr. Wallen with Gordon Programming and Planning that this office furnish you with an account with respect to our ability to respond to calls for service regarding matters of law enforcement and preservation of the peace at the proposed Magnolia Springs subdivision located at 76 Belvedere Farm Lane, Charles Town in Jefferson County, West Virginia.*

*The Sheriff's Office is charged with the affirmative duty of investigating criminal activity, preserving the peace, and enforcing the law. This duty extends to all corners of the county and to any community, subdivision or a business property without regard to size or location.*

*However, as our community continues to grow, it becomes progressively more difficult to assure timely response due to the significant increase in the number of calls for service with the staffing that is currently being provided to the Sheriff's Office. On occasion, calls for service must be handled on a priority basis where the most-serious, urgent type of events must receive priority in response and other, less serious calls for service, are responded to as quickly as manpower becomes available.*

*The foregoing should not be construed as an expression from this office that we are unable or unwilling to respond to calls for service in a timely manner. Given the resources and level of manpower with which we are obligated to work, our level of service is, and will continue to be responsive, timely, and efficient in carrying out our duties and responsibilities in the areas of law enforcement, criminal investigation and preservation of the peace in the Jefferson County community.*

*Sincerely,*

*Peter H. Dougherty  
Sheriff and Treasurer  
Jefferson County*

**From:** Lawrence Willingham  
**To:** [Planning Department](#)  
**Cc:** [Jennifer Brockman](#)  
**Subject:** Magnolia Springs  
**Date:** Tuesday, March 27, 2018 10:02:37 AM  
**Attachments:** [Subdivision Guidelines SOP 9.2.pdf](#)

---

Good morning,

Regarding the Magnolia Springs community, we would very much like to have a discussion on:

- a) If school bus service within the community will be intended
- b) If so, be included on potential locations for bus stop locations

I have attached the Jefferson County Schools "Subdivision Guidelines"

Feel free to contact me should you have any questions.

Thank you,

[Larry Willingham](#)

*Computer Operator/Routing Specialist*

[Jefferson County Schools - Transportation Department](#)

635 McGarry Blvd

Kearneysville, WV 25430

(304) 885-5092 (O)

(304) 582-1014 (C)

(304) 725-5042 (Fax)

**The information contained in this electronic mail is intended for the recipient(s) only. If you believe that it has been sent to you in error, you are asked to please notify the sender immediately by reply e-mail and delete this message.**

## Guidelines for School Bus Entry and Service into Subdivisions

The following are “guidelines for school bus entry and service into subdivisions” in Jefferson County. Once a request has been approved, the following guidelines shall be met each school term. If the conditions are not maintained satisfactorily, in the opinion of the Coordinator of Transportation, the extension of bus service within that subdivision will be discontinued until improvements have been made. The Coordinator of Transportation shall make the final decision regarding school bus service within subdivisions.

Exceptions to these guidelines may be granted to provide transportation services for physically and/or severely impaired students transported on special needs school buses.

School bus transportation services on roadways not owned or maintained by West Virginia Department of Highways shall be equal to the highest specifications of the West Virginia Department of Highways, which are

- a paved surface over a good stone base
- a minimum of eighteen feet width of pavement
- Proper storm water drainage

Roadways within subdivisions shall be maintained in a satisfactory manner, which shall include

- brush, tree limbs, trash, basketball stands and other obstructions shall be clear of serviced roadways
- A contract/agreement with a snow removal service to keep roadways clear during inclement weather with a copy on file at the Jefferson County Schools Transportation Department
- "Speed Bumps" are approved with a height no greater than four inches from the road surface and shall be no less than twenty four inches wide

Because subdivisions are not patrolled by law enforcement, the community must take full responsibility in patrolling their roads and streets in maintaining a safe and acceptable environment for school bus transportation services.

Subdivisions must provide appropriate road markings, traffic and street signs which shall include

- Posted Speed limit signs (No less than 15 M.P.H.)
- Posted Stop signs
- Posted School bus stop signs
- Center line markings on pavement
- Crosswalks and any other markings deemed necessary for the safety and well being of all students within the community
- No parking along streets serviced during designated school bus service times

Subdivision roadways and streets must be designed in a way to allow ingress and egress by the school bus without the school bus negotiating a turn that involves backing in any way.

The Coordinator of Transportation or his designee will work with the President of the Homeowners' Association (or equivalent) or his/her designee to meet and agree on all guidelines and implementation of school bus service. It is strongly recommended that school bus stops be positioned

- At a “common area” within the community or at an intersection within the community.
- With vehicular parking in mind (parents waiting on the school bus while other residents of the community are attempting to maneuver into or out of the community)

- Free from culverts, ditches, drains and other obstructions which could pose a threat of injury

There shall be no more than three school bus stops designated within the community.

The President of the Homeowners' Association (or equivalent) or his/her designee shall communicate with all residents within the community pertinent information pertaining to Jefferson County Schools and the community during the discussion and planning process as well as any discussion which may occur after implementation of school bus service.

The President of the Homeowners' Association (or equivalent) or his/her designee shall communicate with the Jefferson County Schools Department of Transportation any changes in contact information.

Student school bus transportation population within subdivisions is a factor in determining, establishing and maintaining school bus service which is

- High School (grade 9 – 12)                      15 students
- Middle School (grade 6-8)                      10 students
- Elementary School (grade K-5)                8 students
- Emphasis is focused on Elementary school students

Overall student time on bus for the school bus route is also a determining factor in determining and establishing school bus service.

Updates or amendments can be made at any time at the discretion of the Jefferson County Schools Transportation Department and/or the West Virginia School Bus Transportation Department.

Upon completion and compliance of all amenities, it is the responsibility of the Homeowners' Association (or equivalent) to continue to meet all guidelines. If/When the Homeowners' Association fails to meet the above requirements, the privileges of school bus transportation will be discontinued until improvements have been made and requirements are met.

Staff Report  
 Jefferson County Planning Commission Meeting  
 April 10, 2018

**ITEM #s 6-9**

**Public Hearings:** Waiver Requests for Magnolia Springs Subdivision. (PCW File# 18-03 through-18-06)

- (PCW#18-03) Waiver from Section 21.101.A of the Subdivision Regulations that requires a block length to not exceed 6 lots; requesting a block length of 12 lots on one side of the street.
- (PCW#18-04) Waiver from Section 21.104.A of the Subdivision Regulations that requires a minimum lot frontage width of 80'; requesting a minimum lot frontage of 70'.
- (PCW#18-05) Waiver from Section 21.306 of the Subdivision Regulations due to shallow block depth, topography and natural resources.
- (PCW#18-06) Waiver from Section 2.2.K.1.a of the Subdivision that requires curbs, gutters and sidewalks in residential conventional subdivisions where net residential density is greater than three dwelling units per acre of land where lot frontages are 80' or less.

APPLICANT:	Belvedere Family Trust C/O Walter J. III & William K. Truettner
OWNER/DEVELOPER:	Same as above
SURVEYOR/ENGINEER:	Gordon
PROPERTY LOCATION:	West side of Rte. 340 (Berryville Pike), East side of Belvedere Farm Ln
LEGAL DESCRIPTION:	Tax District: Charles Town (02); Tax Map: 10; Parcels 8 & 8.6; Zoned: Residential Growth; Size: 67.8 acres.
SURROUNDING PROPERTIES:	The properties are surrounded by residential lots within the town limits of Charles Town and small single family lots in the unincorporated area. The property to the north is zoned commercial in Charles Town.
LOT AREA:	67.8+/- Acres
PROPOSED ACTIVITY:	301 Lot Major Subdivision

# **Magnolia Springs**

## **Waiver Request Addendum (Block Length)**

March 20, 2018

What Section of the Subdivision Regulations are you requesting to waive.

Section 21.101.A. Block Length. The blocks shall not, in most instances, exceed six lots in length on one side of the street. For attached units, that shall not exceed 12 lots. The length, width, and shape of blocks shall be determined with due regard to the provision of adequate sites for buildings of the type proposed, zoning requirements, fire access, emergency service, and police protection. Blocks may be longer in rural subdivisions due to topographic constraints and/or the total number of lots in the subdivision does not exceed 9 and the lots are over  $\frac{3}{4}$  acre in land area each.

Briefly describe the narrative of your waiver request:

It is requested that blocks may include up to twelve (12) lots on one (1) side of the street for single-family detached units. Block length requirements are not applicable to lots located along the perimeter of the property or lots abutting open space. Block lengths shall only apply to blocks interior to the community. Blocks are defined as "An area of land surrounded on all sides by streets or other transportation right-of-ways or by physical barriers such as water bodies or public open spaces. Blocks are normally divided into lots".

Explain how the design of the project will provide public benefit in the form of County maintenance costs, greater open space, parkland consistent with the County Parks Plan or benefits of similar narrative.

The increased block length relates directly to a reduced lot width (70') requested under a separate waiver for this community. Parkland requirements are based upon the density of a proposed subdivision. A density of 2 to 4 units per acre require that 4% of the community shall be reserved for open space, A density of 4 to 6 units per acre require 7% open space. The reduced lot width allows for a density of 4.5 dwelling units per acre which increases parkland requirements.

The increased block length allows for flexibility in the design of the proposed community. This flexibility allows the integration of parkland into the developments design and into the existing terrain. A rigid block structure based on the number of lots as opposed to actual distances can create an excessive amount of roads when lots of reduced width are utilized. This excessive street structure limits the ability to integrate contiguous parkland into the community.

Increased block lengths and the exclusion of lots abutting open space allows for the creation of a "greenway". This greenway will include a drainage corridor that serves as community open space and will

aid in the treatment of surface and subsurface water flows. Multiple road connections across these corridors results in fragmented open space and reduces the effectiveness of the greenway.

Explain how the waiver, if granted, will not adversely affect public health, safety, or welfare or the rights of adjacent property owners or residents.

The number of lots proposed in a block at Magnolia Springs will not impact the public's health, safety or welfare nor will it impact adjacent property owners and/or residents rights.

Public health, safety or welfare is not impacted by the number of lots provided within a single block. The Subdivision Ordinance states that *the length of a block shall be determined with due regard to the provision of adequate sites for buildings, fire access, emergency service, and polices protection.* Blocks located within a grid system provide interconnections within a community for these emergency responders and these interconnections are maintained in the design of Magnolia Springs. The lots will provide adequate sites for the proposed unit types and no modifications to required building setbacks are being requested.

Adjacent uses to Magnolia Springs include single-family residential, Route 9 and vacant land. The proposed residential use is compatible with the adjacent residential properties and provides a block structure similar to that of Jefferson Avenue, High Street and Belvedere Drive. Similar to the block length proposed within Magnolia Springs, blocks along Jefferson Avenue contain up to 14 lots, High Street up to 13 lots and Belvedere Drive contains up to 11 lots.

Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.

The intent of the Ordinance is to control block length. The metric used by the Ordinance to control block length is number of lots. The variable in this method of measurement is that lot widths will vary and there are no maximum width requirements. In addition, Magnolia Springs is seeking a related waiver to reduce the minimum lot width to 70'. So, a block of six-140 foot wide lots is the exact same length as a block of 12-70 foot lots. This allows the possibility for a block of six (6) lots could have greater length than a block of 20 lots.

As discussed in response to the public health & safety section of this document, proposed blocks will provide adequate building sites, fire access, emergency service, and police protection. The actual length of the block does not necessarily change, just the number of units allowed within that block.

Explain how the waiver, if granted, will result in a project of better quality or character.

The proposed block structure and length allows for the protection of existing natural resources, reduces excessive streets/impervious areas and will create a community in harmony with surrounding neighborhoods.

As discussed earlier, the requested waiver is directly related to the lot width waiver submitted under a separate application. Today's housing market includes a demand for smaller homes on smaller lots which have access to larger common open space areas. Granting this waiver request will allow this market sector to be recognized in Jefferson County and will blend the proposed development with adjacent neighborhoods.

# **Magnolia Springs**

## **Waiver Request Addendum (Lot Frontage)**

March 20, 2018

What Section of the Subdivision Regulations are you requesting to waive.

Section 21.104.A. Frontage. The minimum frontage shall be the minimum lot width for the Zoning District or 80 feet, whichever is less. Flag lots and lots on cul-de-sacs may be permitted to have a minimum frontage of 24 feet based on design and engineering approval.

Briefly describe the narrative of your waiver request:

It is requested that the 80' minimum lot frontage for single-family detached units be reduced by 10' to a 70' minimum lot frontage. No reduction in building setbacks are being sought.

Appendix A of the Jefferson County Zoning and Land Development Ordinance does not have a minimum lot width for a single family detached dwelling, and there is also a provision for "small lot single-family detached dwellings" which allow a minimum lot width of 35'. The requested 70' minimum lot width is greater than both of these requirements.

Explain how the design of the project will provide public benefit in the form of County maintenance costs, greater open space, parkland consistent with the County Parks Plan or benefits of similar narrative.

Parkland requirements are based upon the density of a proposed subdivision. A density of 2 to 4 units per acre require that 4% of the community shall be reserved for open space, A density of 4 to 6 units per acre require 7% open space. The reduced lot width allows for a density of 4.5 dwelling units per acre which increases parkland requirements.

Magnolia Springs will cater to the housing trend that provides smaller lots in exchange for greater common open space. More than 12% of the land within the proposed community is planned community open space and represents an additional 5% of the entire property being dedicated above that which is required by code. It also represents an increase of an additional 8% of the entire property being planned for community open space above that if the density were at 2 to 4 units per acre. The required minimum lot width of 80' could be achieved through reducing the amount of parkland / open space proposed at Magnolia Springs.

Explain how the waiver, if granted, will not adversely affect public health, safety, or welfare or the rights of adjacent property owners or residents.

The reduction of permitted lot width by 10' at Magnolia Springs will not impact the public's health, safety or welfare nor will it impact adjacent property owners and/or residents rights.

There are provisions within the Zoning and Land Development Ordinance (referenced by the Subdivision Ordinance) which allow for a 35' detached single-family residence and townhouse lot widths of 18-20' (could be less based on minimum lot area). The Zoning and Land Development Ordinance would not provide provisions for a lot which is ½ the width of the proposed 70' lot width if the reduced lot frontage was a detriment to the health, safety or welfare of Jefferson County citizens.

Adjacent uses to Magnolia Springs include single-family residential, Route 9 and vacant land. The proposed residential use is compatible with the adjacent residential properties and provides single-family detached lots similar to that of Jefferson Avenue, Belvedere Farm Court and Belvedere Drive. Similar to the lots proposed within Magnolia Springs, lots along Jefferson Avenue contain lots with a width of less than 50', Belvedere Farm Court contains lots of 50' width and Belvedere Drive contains lots of 70 width'.

Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.

As discussed in response to the public health & safety section of this document, the Zoning and Land Development Ordinance provides provisions for a minimum lot width of 35'. The requested waiver will provide a minimum lot width which is double that which the Ordinance determines acceptable.

Through its regulations, the Ordinance encourages density where public water and sanitary sewer is available. The proposed development will be served by public water/sanitary sewer and is similar in design to that of adjacent neighborhoods. Density is achieved through reduced lot widths, areas and additional housing options.

Explain how the waiver, if granted, will result in a project of better quality or character.

Today's housing market includes a demand for smaller homes on smaller lots which have access to larger common open space areas. Granting this waiver request will allow this market sector to be recognized in Jefferson County and will blend the proposed development with adjacent neighborhoods.

This community will provide larger community open spaces for its residents to enjoy. The proposed open space and density is in part due to the reduced lot width/area. The increase in open space also highlights and protects the natural resources of the site. The Magnolia Springs vision includes smaller lots with less maintenance and a highly amenitized neighborhood focused around central opens space.

## **Magnolia Springs**

### **Waiver Request Addendum (Intersection Spacing)**

March 20, 2018

What Section of the Subdivision Regulations are you requesting to waive.

Section 21.306. Intersections. Intersections may be permitted closer than the 300 foot centerline distances where...

Briefly describe the narrative of your waiver request:

It is requested that road intersections be permitted within 175 feet as measured at road centerline distances. This requirement will apply to internal subdivision streets only. This waiver does not and cannot override any state requirements for West Virginia Department of Highway roads.

The Subdivision Ordinance provides relief from the 300' intersection separation due to shallow lot depth, topography or natural resources. Reduced intersection spacing within the proposed Magnolia Springs development is due to shallow lot depth or to preserve the existing terrain and natural resources. There is an ambiguous statement within the Ordinance that states "An exception shall be granted unless a reasonable alternative street configuration exists which will provide the needed separation". The Applicant/Developer is seeking to clarify the acceptable intersection spacing through this waiver request. This will provide the Applicant/Developer direction prior to a substantial investment in detailed engineering design.

Explain how the design of the project will provide public benefit in the form of County maintenance costs, greater open space, parkland consistent with the County Parks Plan or benefits of similar narrative.

The reduced intersection distance allows for flexibility in the design of the proposed community. This flexibility allows the integration of parkland and existing terrain into the development. A standard intersection spacing can force the development to encroach upon desired open spaces and impact the preservation of natural resources.

Reduced intersection spacing allows for the creation of a "greenway". This greenway will include a drainage corridor that serves as community open space and will aide in the treatment of surface and subsurface water flows. The flexibility provided by reduced intersection spacing promotes the consolidation of open spaces and increase the effectiveness of the greenway.

Explain how the waiver, if granted, will not adversely affect public health, safety, or welfare or the rights of adjacent property owners or residents.

The reduced intersection distance applies to private subdivision roads within Magnolia Springs and will not impact the public's health, safety or welfare nor will it impact adjacent property owners and/or residents rights.

The proposed design of Magnolia Springs discourages pass through traffic by utilizing curves, multiple intersections and turning maneuvers. The low traffic volume, 25 mph speed limits and the implementation of stop signs/markings will provide a safe road network for residents.

Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.

The Subdivision Ordinance provides relief from the 300' intersection separation due to shallow lot depth, topography or natural resources. As discussed earlier, the proposed intersection spacing within Magnolia Springs is a result of these items, and the Applicant/Developer is seeking a waiver for documentation that the proposed intersection spacing is acceptable.

The provision for reduced intersection spacing demonstrates the intent of the Ordinance to accommodate modified block structures/lot depths and in preserving natural resources.

Explain how the waiver, if granted, will result in a project of better quality or character.

The proposed waiver supports the preservation of natural resources and allows for the development to integrate with the existing terrain. This flexibility allows for a united network of open spaces, trails and natural features which elevates the quality and character of Magnolia Springs.

This community will provide larger community open spaces for its residents to enjoy. The proposed waiver allows Magnolia Springs to provide a grid system built on a block structure consisting of shallow depth lots. The proposed open space and density is directly related to shallow lot depth. The Magnolia Springs vision includes smaller lots with less maintenance and a highly amenitized neighborhood focused around central open space.

# **Magnolia Springs**

## **Waiver Request Addendum (Curbs and Gutters)**

March 20, 2018

What Section of the Subdivision Regulations are you requesting to waive.

Section 2.2.K.1.a. (Curbs and Gutters). Roadway curbs, gutters and sidewalks shall be required in residential conventional subdivisions where net residential density is equal to or greater than three dwelling units per acre of land and/or when lot frontages are 80 feet or less.

Briefly describe the narrative of your waiver request:

It is requested that curb and gutters not be required in residential conventional subdivisions where net residential density is greater than three dwelling units per acre and when lot frontages are 70 foot or greater. An open ditch section will be provided in lieu of curb and gutter. This waiver seeks to utilize a stormwater conveyance system permitted under different subdivision conditions (density / lot width).

This waiver request is supported by the Jefferson County Stormwater Management Ordinance as outlined under the "intent and purpose of this Ordinance" section of this document.

Explain how the design of the project will provide public benefit in the form of County maintenance costs, greater open space, parkland consistent with the County Parks Plan or benefits of similar narrative.

Open ditch sections and drainage corridors require less maintenance and are subject to less repairs than other drainage pipe/inlet stormwater conveyance systems.

Open space will be increased to incorporate a greenway into the development. This greenway will include a drainage corridor that serves as community open space and will aide in the treatment of surface and subsurface water flows. The combination of open ditch section and the greenway will create an extended conveyance system to allow for increased infiltration and water treatment.

Explain how the waiver, if granted, will not adversely affect public health, safety, or welfare or the rights of adjacent property owners or residents.

The elimination of curb and gutter will not impact the public's health, safety or welfare nor will it impact adjacent property owners and/or residents rights.

The waiver does not request relief from water quality or quantity standards. Existing Local and State regulations require the post development surface water discharge be less or equal to pre development rates. These regulations ensure that the existing health, safety, welfare and rights of adjacent property owners or residents will not be impacted by this waiver request.

Adjacent uses to Magnolia Springs include single-family residential, Route 9 and vacant land. The proposed residential use is compatible with the adjacent residential properties and provides a road section similar to that of Jefferson Avenue, High Street, Belvedere Drive and Euclid Avenue, which do not contain curb & gutter.

Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.

The use of best management practices / low impact design measures are widely recognized as the preferred method of water treatment for proposed developments. The location of Magnolia Springs within karst geology and Chesapeake Bay watershed elevates the importance of increased water quality measures.

The Jefferson County Stormwater Management Ordinance encourages the use of water quality practices which include the use of swales. These swales (i.e. open ditch sections) will allow for greater water quality benefit than traditional curb, gutter and piping. The requested waiver is keeping with this intent of the Ordinance.

Explain how the waiver, if granted, will result in a project of better quality or character.

The inclusion of drainage swales opposed to curb and gutter provides a development which contributes to the health of downstream properties and the overall watershed. If allowed, the inclusion of grass swales represent quality through design in the treatment of surface water runoff.

The proposed treatment practices will be incorporated throughout the developments right-of-ways and open spaces to elevate Magnolia Springs overall quality and character.

# **Engineering Report**

## **Magnolia Springs Waiver for Curb and Gutter 03/10/2018**

### **Request:**

Gordon for NLP Finance, LLC is requesting a variance from the 2008 Subdivision and Land Development Regulations, Sec. 2.2 Streets K Curbs, Gutters & Sidewalks:

#### Section 2.2K1a

##### 1. Where Required.

- a. Roadway curbs, gutters and sidewalks shall be required in residential conventional subdivisions where net residential density is equal to or greater than three dwelling units per acre of land and/or when lot frontages are 80 feet or less.

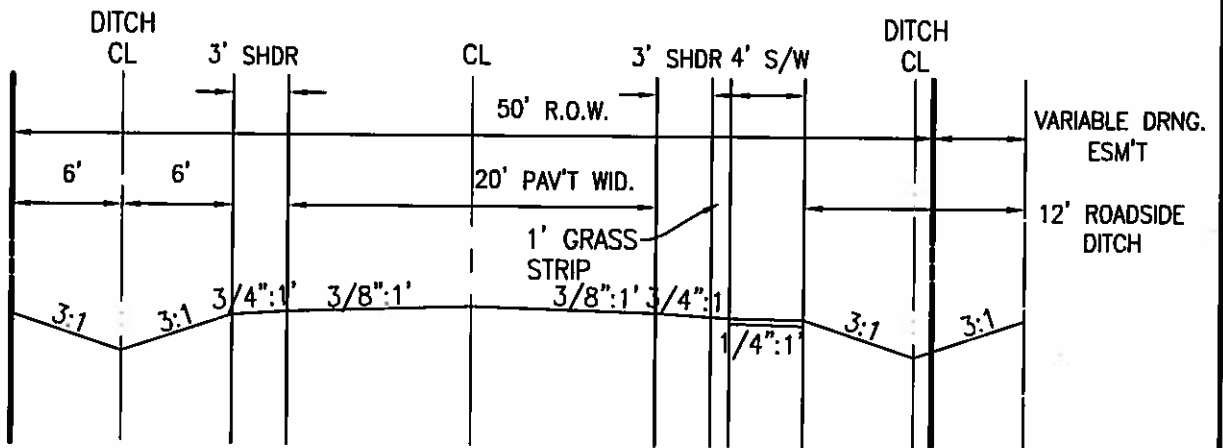
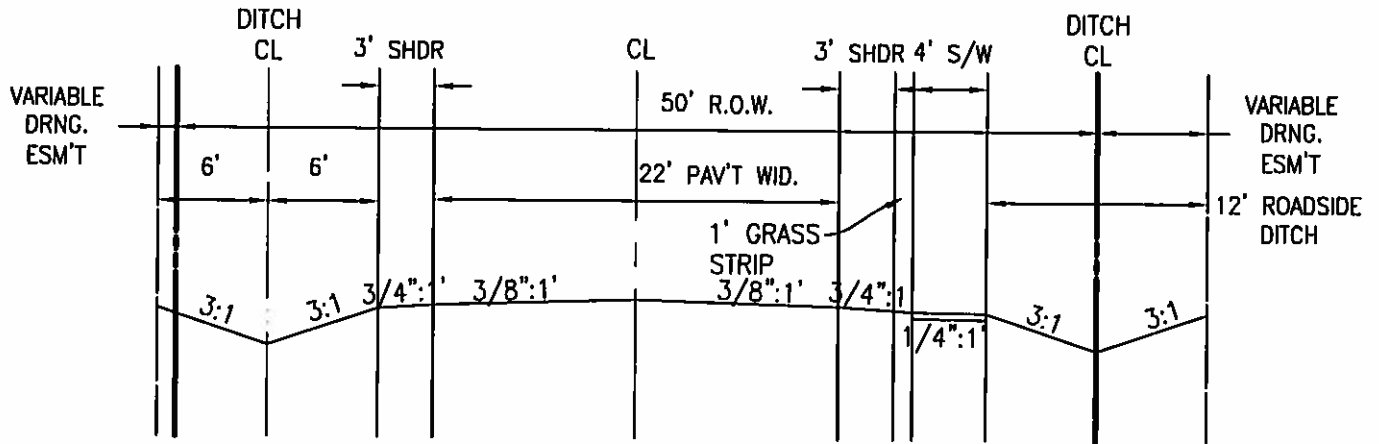
The applicant is requesting a waiver to allow the road cross-section to utilize an open ditch section rather than curb and gutter.

### **Issues**

- In most cases, curb and gutter is commonly used in place of the ditch line because more space is needed for sidewalk to be within the ROW. There is not enough ROW width to accommodate a ditch line and sidewalk combined.

### **Findings:**

- SWM Ordinance article IV E 1 d (1)  
The following methods and practices should be utilized to the greatest extent possible, and identified within the Stormwater Management Plan, to meet minimum control requirements before resorting to structural BMPs.  
(d) Minimizing impervious area
- SWM Ordinance article IV E 2 e  
(2) The following nonstructural stormwater management practices shall be applied according to the West Virginia Stormwater Management and Design Guidance Manual to minimize increases in stormwater runoff in new development: (e) Grass channels
- The cross-section of the road with both ditch line and sidewalk will exceed beyond the 50' ROW. The applicant is proposing to add an additional easement for the ditch line.



ROAD CROSS SECTIONS

MAGNOLIA SPRINGS

DATE:04/02/2018

PROJECT NO.:3314-0101

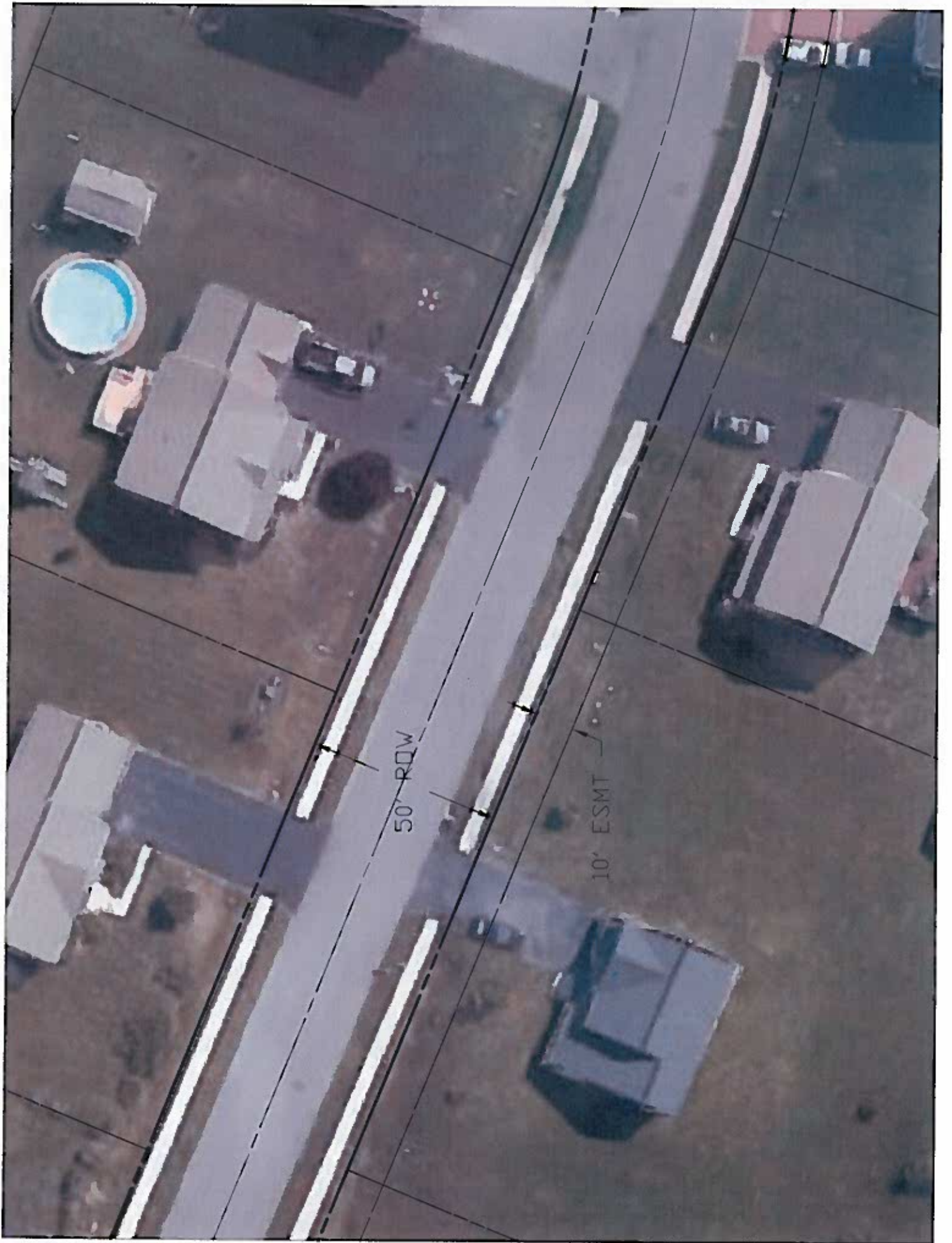
SCALE:1"=10' H&V



148 S. Queen Street, Suite 201  
Martinsburg, WV 25401  
Phone: 304-725-8456  
www.gordon.us.com

PROGRAMMING AND PLANNING  
CIVIL ENGINEERING  
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**JEFFERSON COUNTY, WEST VIRGINIA**  
**Dept. of Engineering, Planning, and Zoning**  
**Office of Planning and Zoning**  
 116 East Washington Street, P.O. Box 716  
 Charles Town, WV 25414  
 www.jeffersoncountywv.org

File Number: \_\_\_\_\_  
 Staff Initials: \_\_\_\_\_  
 Sketch Received: \_\_\_\_\_  
 List of Adjoiners: \_\_\_\_\_  
 Fees Paid: \_\_\_\_\_

Email: [planningdepartment@jeffersoncountywv.org](mailto:planningdepartment@jeffersoncountywv.org)  
[zoning@jeffersoncountywv.org](mailto:zoning@jeffersoncountywv.org)

Phone: (304) 728-3228  
 Fax: (304) 728-8126

**Waiver Request**

*Note: Waivers from the 2008 Amended Subdivision Regulations must comply with Division 24.300 of the Subdivision Regulations.*

*Sketch on a separate sheet of paper the shape and location of lot. Show the location of the intended construction or land use indicating building setbacks, size, and height. Identify existing buildings, structures, or land uses on the property. Sign and date the sketch. Provide a vicinity map of the area and a list of the adjoining property owner's mailing addresses.*

**Property Owner Information**

Name: Belvedere Farm Family Trust c/o Walter J III & William K Truettner  
 Mailing Address: P.O. Box 247; Crested Butte, CO 81224  
 Phone Number: 304-901-4931 Email: hwilson@hillcrestrealty.us

**Applicant Contact Information**

Name: NLP Finance, LLC c/o Hunter Wilson  
 Mailing Address: P.O. Box 1875; Martinsburg, WV 25402  
 Phone Number: 304-901-4931 Email: hwilson@hillcrestrealty.us

**Applicant Registered Engineer(s), Surveyor(s), or Consultant(s)**

Name: GORDON  
 Mailing Address: 148 S. Queen Street, Suite 201; Martinsburg, WV 25401  
 Phone Number: 304-725-8456 Email: cwallen@gordon.us.com

**Physical Property Details**

Physical Address: 76 Belvedere Farm Lane; Charles Town, WV 25414  
 Tax District: Charles Town Map No: 10 Parcel No: 8 & 8.6  
 Parcel Size: Charles Town (2) Deed Book: 1132 Page No: 301

**Zoning District (please check one)**

Residential Growth (RG)	Industrial Commercial (IC)	Rural (R)	Residential- Light Industrial- Commercial (R-LI-C)	Village (V)	Neighborhood Commercial (NC)	General Commercial (GC)	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
			Highway Commercial (HC)	Light Industrial (LI)	Major Industrial (MI)	Planned Neighborhood Development (PND)	Office/Commercial Mixed-Use (OC)
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Place Date Stamp Here

**What Section of the Subdivision Regulations are you Requesting to Waive?**

Section 21.101.A. (Block Length), Section 21.104.A. (Lot Frontage), Section 21.306. (Intersections), and Section 2.2.K.1.a. (Roadway curb, gutters)

**Briefly Describe the Nature of Your Waiver Request:**

Section 21.101.A. (Block Length): Allow block lengths to contain up to 12 lots on one side of the street.

Section 21.104.A. (Lot Frontage): Allow a 70 foot minimum lot frontage / width.

Section 21.306. (Intersections): Permit road intersections to be within 200' centerline distance of each other

Section 2.2.K.1.a. (Roadway curb, gutters): Allow open ditch road section (no curb or gutter) in residential subdivisions which have a density greater than 3 units per acre and/or where lot frontages are less than 80'.

**Explain how the design of the project will provide public benefit in the form of reduction in County maintenance costs, greater open space, parkland consistent with the County Parks Plan or benefits of a similar nature.**

See attached.

**Explain how the waiver, if granted, will not adversely affect the public health, safety, or welfare or the rights of adjacent property owners or residents.**

See attached.

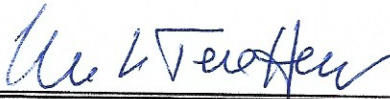
**Explain how the waiver, if granted, will be in keeping with the intent and purpose of this Ordinance.**

See attached.

**Explain how the waiver, if granted, will result in a project of better quality and/or character.**

See attached.

**Original signature is required. The information given is correct to the best of my knowledge.**

 2/12/18

Signature of Property Owner

Date

Signature of Property Owner

Date

**To Be Completed By Office**

\_\_\_\_\_ Date of Public Meeting/Public Hearing

\_\_\_\_\_ Date Property to be Posted By

\_\_\_\_\_ Official/Administrative Body

\_\_\_\_\_ Date Adjoiner Letters to be Mailed

Approved/Denied by a vote of \_\_\_\_\_ for and \_\_\_\_\_ against this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

Approved  Denied

## ARTICLE 2: DEFINITIONS

### Section 2.1 Definitions

For the purpose of these regulations, the following terms, phrases, words and their derivations shall have the meaning given herein. Words used in the present tense include the future, the singular number includes the plural and the plural is the singular. The word “shall” is mandatory and the word “may” is permissive. The words “used for” shall include “arranged for”, “designed for”, “intended for”, “maintained for”, “constructed for”, or “occupied for”. The word “person” shall mean natural person, joint venture, joint stock company, partnership, association, club, company, corporation, business trust or the manager, lease, agent, servant, officer or employee of any of them. The word “land” shall include water surface and land under water.

### Section 2.2 Terms Defined

Abandonment or Abandoned <sup>17, 21</sup>	The relinquishment of property or cessation of the use of the property by the owner or lessee without any intention of transferring rights to the property to another owner or resuming the nonconforming use of the property for a period of one year.
Accessory Agricultural Dwelling Unit <sup>26, 32</sup>	An accessory dwelling unit that is incidental and subordinate to the principal dwelling unit, which is located on the same lot as the principal building, and is limited to use by a person (and family) who performs agricultural work on the property or acts as a caretaker for the property.
Accessory Dwelling Unit <sup>32</sup>	A secondary dwelling unit that has a separate kitchen, bathroom, and sleeping area, and may be attached to the principal dwelling unit or detached and situated on the same lot as the principal dwelling unit. An accessory dwelling unit is part of the same property as the main home and cannot be bought or sold separately unless subdivided in accordance with the Subdivision Regulations and the Zoning Ordinance. The owner of the accessory dwelling unit is the owner of the principal dwelling unit. The property owner or immediate family member must occupy either the principal dwelling unit or the accessory dwelling unit. An accessory dwelling unit shall meet the definition of an accessory agricultural dwelling unit or an in-law suite as provided in Section 8.15 of this Ordinance.
Accessory Equipment <sup>22</sup>	Any equipment serving or being used in conjunction with a Wireless Telecommunications Facility. This equipment includes, but is not limited to, utility or transmission equipment, power supplies, generators, batteries, cables, equipment buildings, cabinets and storage sheds, shelters or other structures.
Accessory Use	A structure or use which is customarily incidental and subordinate to the principal building or use which is located on the same lot as the principal building. Accessory structures include garages, tool sheds, storage buildings, swimming pools or other similar structures. An accessory structure having any part of a wall in common with a dwelling is considered part of the main building and must meet those setbacks.

Battlefield <sup>32</sup>	There are Federally recognized battlefields in Jefferson County as determined by the Civil War Sites Advisory Commission. For the purpose of this Ordinance, green space includes battlefield core areas.
Bed and Breakfast <sup>23</sup>	A single-family dwelling where lodging is offered for compensation, having no more than seven (7) bedrooms for this purpose, and meeting the requirements for such a use in Article 8 of this Ordinance.
Bicycle Parking Space <sup>27</sup>	A volume of space that can accommodate locked storage of one (1) bicycle at a bicycle rack, i.e. a fixture to which one or more bicycles can be securely locked.
<u>Billboard</u>	<u>A structure on which is portrayed information which directs attention to a business commodity, service or entertainment not necessarily related to the other uses permitted on the premises upon which the structure is located. (See Sign, Outdoor Advertising)</u>
Blue Ridge Line <sup>11</sup>	The common surveyed boundary between Jefferson County, West Virginia and Loudoun County, Virginia.
Board <sup>17, 21</sup>	The Jefferson County Board of Zoning Appeals.
Boarding or Rooming House <sup>24</sup>	A building other than a Hotel, Motel, Bed and Breakfast, Residential Care Home, Group Residential Home, Group Residential Facility, or Country Inn where lodging is provided for compensation for more than 6 unrelated persons. Meals may or may not be served but are not provided to outside guests. There is one common kitchen facility.
Brewer	Any person manufacturing craft beer from malt and hops by infusion, boiling, and fermentation for sale at wholesale to any licensed distributor.
Brewpub	An establishment owned by a resident brewer in which craft beer is manufactured and sold on premises in accordance with WV State Code licensing requirements. A brewpub may include the incidental sale of food.
Broadcast Tower <sup>22</sup>	A structure situated on a lot that is intended for transmitting television or AM/FM radio signals.
Buffer <sup>5</sup>	An area on a property defined by a distance from the property line or other specifically designed line such as flood plain, wetland limit or stream bank. Said area is intended to absorb, lessen or neutralize the impacts of one land use from another. The nature of the buffer will depend on the impact(s) being neutralized.
Building	Any structure which is permanently affixed to the land and has one or more floors and a roof. The term building shall include manufactured homes.
Building Line	The line established by law beyond which a building shall not extend as determined by front, side and rear yards, herein.

Sign	Any object, device display or structure, or part thereof, situated outdoors or indoors, which is used to advertise, identify, display, direct, or attract attention to an object, person, institution, organization, business, product, service, event or location by any means, including words, letters, figures, designs, symbols, fixtures, colors, illumination or projected images.
Sign, Animated	A sign with action or motion, flashing lights, or color change requiring electrical energy, electronic, or manufactured sources of supply, but not including wind actuated elements such as flags, banners, or pennants.
<u>Sign, Billboard</u>	<u>A structure on which is portrayed information which directs attention to a business commodity, service, or entertainment not necessarily related to the other uses permitted on the premises upon which the structure is located. (See Sign, Outdoor Advertising)</u>
Sign, <u>Attached</u> Business	A sign <u>attached to a building/structure</u> which directs attention to a business or profession or to a commodity, service, or entertainment sold or offered upon the premises where the sign is located.
<u>Sign, Electronic</u>	<u>A sign utilizing lights that change to form a static sign message or graphic wherein the sequence of messages and rate of change is electronically programmed.</u>
Sign, Freestanding <u>Business</u>	A sign supported by a permanent structure, other than a building, that is affixed to the earth and placed on the same parcel of land on which the business <u>commodity, or service, or entertainment</u> advertised by the sign is located.
<u>Sign, Inflatable</u>	<u>Any display capable of being expanded by air or other gas and used on a temporary or permanent basis to advertise a product or event.</u>
<u>Sign, Pylon</u>	<u>A sign which advertises more than one land use on the premises where the sign is located.</u>
Sign, Vehicle <sup>23</sup>	A sign or advertising device which is painted, mounted, affixed or otherwise attached to a vehicle or trailer, which is used for the purpose of providing advertisements of products and services or directing people to a business or service or other activity on or off the premises or public right-of-way where such vehicle sign is located. This does not include identification signs on vehicles which are moved regularly and used in the normal, day-to-day operation of the business.
Sign, <u>Off-Premises</u> <u>Outdoor Advertising</u>	A sign structure which directs attention to a business, commodity, service, or entertainment not necessarily conducted, sold, or offered upon the premises where such sign is located. <del>This term shall include billboards.</del>
Soil Value	A relative numeric value assigned to soil groups based on the group's potential for agricultural production.

## **Section 6.2 Variances<sup>32</sup>**

The Board of Zoning Appeals shall consider requests for variances from the terms of the Ordinance.<sup>23</sup>

- A. The Board shall approve a variance request if the Board finds that a variance:
  1. Will not adversely affect the public health, safety or welfare, or the rights of adjacent property owners or residents;
  2. Arises from special conditions or attributes which pertain to the property for which a variance is sought and which were not created by the person seeking the variance;
  3. Would eliminate an unnecessary hardship and permit a reasonable use of the land; and
  4. Will allow the intent of the Zoning and Land Development Ordinance to be observed and substantial justice done.<sup>17, 21</sup>
- B. The owner or authorized representative of the owner of the property which is the subject of a variance request shall complete and sign forms provided for this purpose by the Board, and shall pay the associated fees. The variance request shall be filed with the Board in the Office of Planning and Zoning.
- C. Notification for a variance must be conducted according to the requirements of Section 6.1B.
- D. A public hearing must be conducted according to the requirements of Section 6.1C and such hearing may be continued according to the requirements of Section 6.1D.

## **Section 6.3 Conditional Use Permit<sup>32</sup>**

The Board of Zoning Appeals shall have the authority over the issuance or denial of a conditional use permit for uses listed as “Conditional Uses (CU)” in each zoning district. The Board shall have the authority to impose such reasonable conditions and restrictions as are directly related to and incidental to the proposed conditional use permit.<sup>2, 32</sup>

- A. The Board shall consider each Conditional Use Permit request that is filed in accordance with this Ordinance and the procedural requirements of the Board of Zoning Appeals. The Board may require reasonable conditions or special requirements which allows for the proper integration of the proposed uses into the community and are directly related to and incidental to the proposed conditional use permit. The following General Standards shall be considered in approving or denying the CUP:
  1. The proposed use is compatible with the goals of the adopted Comprehensive Plan.
  2. The proposed use is compatible in intensity and scale with the existing and potential land uses on the adjoining and confronting properties, and poses no threat to public health, safety and welfare.
  3. The proposed site development shall be such that the use will not hinder nor discourage the appropriate development and use of adjacent land and buildings.
  4. Neighborhood character and surrounding property values shall be safeguarded by requiring implementation of the landscaping buffer requirements found in Appendix B and Section 4.11 of this Ordinance.
  5. Commercial and Industrial Uses shall be in conformance with Section 8.9 of this Ordinance.
  6. For properties in the Rural zoning district, roadway adequacy shall be assessed by the Comprehensive Plan’s Highway Road Classification Map. If a rural parcel is not shown as commercial on the Future Land Use Guide or does not front on a Principal Arterial,

Minor Arterial, or Major Collector road (as identified in the Comprehensive Plan), the applicant shall submit trip generation data, including Average Daily and Peak Hour trips, for the BZA to review in conjunction with the Highway Problem Areas Map when determining roadway adequacy for the proposed use.

~~6.7.~~ Any signs associated with the proposed Conditional Use shall be reviewed by the Board per Section 10.6.

- B. The owner or authorized representative of the owner of the property for which the Conditional Use Permit is being requested shall complete and sign forms provided for this purpose by the Board, and shall pay the associated fees. The Conditional Use Permit request shall be filed with the Board at the Office of Planning and Zoning.
- C. Staff will notify the adjacent and confronting property owners of the date, time, and location of the Public Hearing by registered mail. Notification for a Conditional Use Permit must be conducted according to the requirements of Section 6.1B.
- D. A public hearing must be conducted according to the requirements of Section 6.1C and such hearing may be continued according to the requirements of Section 6.1D.
- E. If there are no negative public comments received by the Board, the Board shall issue the Conditional Use Permit but may require reasonable conditions.

#### **Section 6.4 Seasonal Uses<sup>5, 7, 32</sup>**

Seasonal uses must be approved by the Board of Zoning Appeals pursuant to a public hearing according to the requirements of Section 6.1C. Newspaper notification requirements of Section 6.1B apply. Seasonal uses cannot be approved for longer than one year at a time.<sup>17, 21, 23</sup>

#### **Section 6.5 Special Exception ~~Permit~~Uses<sup>26, 32</sup>**

- A. Special Exception uses listed in this section may be approved by the Board of Zoning Appeals ~~following~~ subject to a public hearing in accordance with the following:-
  - ~~1.~~ The public hearing is subject to the notification requirements of Section 6.1B.
  - ~~2.~~ The public hearing shall be conducted according to the requirements of Section 6.1C.
  - ~~3.~~ Such hearing may be continued according to the requirements of Section 6.1D.
  - ~~4.~~ The public hearing is subject to the notification requirements of Section 6.1B.
- B. The following ~~signs~~ uses may be approved as a Special Exception:
  - ~~1. Off-Premises Signs per Section 10.5A~~ outdoor advertising signs including billboards.
  - ~~2. Billboard Signs per Section 10.5B~~
  - ~~3. Electronic Signs per Section 10.5C~~

The Board of Zoning Appeals shall determine if such a sign conforms to existing State law and does not have a negative effect on the neighborhood or intent of this Ordinance.<sup>17, 21</sup>

## ARTICLE 10: PROVISIONS FOR SIGNS

### Section 10.1 Purpose of Sign Provisions

The purpose of this section is to regulate all exterior signs and interior signs placed for exterior observance so as to protect property values and the character of the County. Any sign placed on land or on a building for the purposes of identification or for advertising a use conducted therein or thereon shall be deemed to be accessory and incidental to such land, building or use.

~~It is intended that the placement of a particular sign will be appropriate to the land, building, or use to which they are appurtenant and be adequate, but not excessive, for the intended purpose of identification or advertisement. It is also intended that in areas proposed for new development, that signs placed will be harmonious in color, form and proportions to its surroundings.~~

### Section 10.2 General Provisions

~~It is intended that the placement of a particular sign will be appropriate to the land, building, or use to which they are appurtenant and be adequate, but not excessive, for the intended purpose of identification or advertisement. It is also intended that in areas proposed for new development, that signs placed will be harmonious in color, form and proportions to its surroundings.~~

- ~~A.~~ No sign shall be erected, hung, or placed in any district except as provided in this Ordinance.
- ~~A.B.~~ No sign erected before the enactment of this Ordinance shall be structurally altered or moved except in accordance with this Ordinance.
- ~~B.C.~~ ~~No zoning permit shall be required for the repainting or repairing of a sign.~~
- ~~C.D.~~ No signs, other than subdivision signs approved by the Planning Commission, shall be located in the right-of-way of any road or on any slope or drainage easement for such road, or within any stormwater, drainage, or utility easement.<sup>2, 17, 21, 23</sup>
- ~~D.E.~~ No sign shall be permitted which ~~is an imitation of~~ or ~~which~~ resembles an official traffic control device, railroad sign or signal, or which hides from view or interferes with the effectiveness of an official traffic control device or any railroad sign, signal, or traffic sight lines. ~~Illuminated signs shall be so constructed as to avoid glare or reflection of any portion of an adjacent highway or residential building.~~
- ~~E.F.~~ No sign which implies the need or requirement of stopping or this existence of danger shall be displayed.
- ~~F.G.~~ No sign shall be placed on rocks, trees, or on poles maintained by public utilities.
- ~~G.H.~~ No sign shall be permitted which becomes unsafe or endangers the safety of the building, premises, or persons and unless maintained in a good general condition.
- ~~H.I.~~ No sign shall be permitted which contains statements, words or pictures of an obscene, indecent, or immoral character.
- ~~J.~~ Illuminated signs shall be so constructed as to avoid glare or reflection of on any portion of an adjacent highway or residential building.
- ~~K.~~ ~~No~~ Animated signs, as defined by Section 2.2, are prohibited allowed.
- ~~L.~~ Inflatable signs, as defined by Section 2.2, are prohibited. Residential, seasonal lawn decorations are exempt from this provision.
- ~~M.~~ Vehicle signs, as defined by Section 2.2, are prohibited per Section 4.4J.

**Section 10.3 Signs Permitted ~~Signs Without Zoning Certificate~~ Permit**

**A. Repainting or repairing of a sign.**

~~A.B.~~ Signs posted upon property relating to private parking or warning the public against trespassing or against dangers of animals.

~~B.C. Municipal, County, State and Federal signs, including necessary traffic signs.~~

~~C.D. Historical markers, monuments, or signs erected by a public authority.~~

~~D.E.~~ Plates on residential structures or premises giving the name or address of the occupant, mailboxes, papertubes, and ~~similar uses~~ signs customarily associated with residential uses.

~~E.F.~~ A sign ~~indicating advertising the name and/or premises or accessory use of a home for an approved home occupation or cottage industry professional purpose~~, not exceeding the maximum size for such a sign as permitted in Article 4A of this Ordinance.

~~G.~~ A sign not exceeding 25 square feet ~~and no more than 6 feet in height~~ on a farm, advertising farm ~~activities and/or~~ products primarily grown on the premises.

~~F.H. Municipal, County, State and Federal signs, including necessary traffic signs.~~

~~G.I. Historical markers, monuments, or signs erected by a public authority.~~

~~H.J.~~ Directional or informational signs of a public or quasi-public nature, such as those containing the meeting date of a community or civic club, or the advertising of a public event.

**K. Temporary Signage**

The temporary sign must be located on the property for which the advertisement is related. One temporary sign is permitted per street frontage. Temporary signs shall not be located within a public right-of-way. All temporary signs shall be removed 30 days after the event.

1. A sign not exceeding 20 square feet and no more than 6 feet in height that advertises:

a) ~~A temporary Real estate information sign designating the zoning classification of the parcel, not exceeding 20 square feet and being located on the subject property for sale or lease.~~

b) ~~Services rendered by a contractor and/or professional person.~~

c) ~~A short-term or limited-time sale.~~

2. ~~A sign not exceeding 100 square feet that announces an upcoming subdivision or commercial site. Sign shall not interfere with traffic visibility.~~

3. ~~A sign that advertises a Seasonal Use approved by the Board of Zoning Appeals.~~

~~4. Election signs are permitted if erected no more than 90 days before the election and removed within 15 days of announced results. Signs shall not interfere with traffic visibility.~~

~~I. Building contractors', subdivision and/or professional person' temporary signs on buildings or land under construction but not to exceed 100 square feet.~~

~~J. Election signs, provided that unsuccessful candidate shall remove signs within 15 days after a primary or special election. All signs shall be removed within 15 days after the general election. Signs shall not interfere with traffic visibility.~~

~~K. All temporary signs shall be removed 30 days after the event, unless otherwise specified in Article 10.~~

## Section 10.4 Signs Requiring a Zoning ~~Certificate~~ Permit

Business and outdoor advertising signs in all zoning districts shall require a Zoning Certificate before placement on any property or building.<sup>2</sup> Sign types are defined in Section 2.2.

~~A. Business and outdoor advertising signs in all zoning districts shall require a Zoning Certificate before placement on any property or building.<sup>3</sup>~~

### B. Attached Business Signs

Signs attached to a building related to the subject land use are permitted, provided:

1. Any exterior sign or signs pertaining to the use conducted on the premises, and which is either integral with or attached to the principal building, shall have a sum ~~The~~ total area of the sign shall be no more than two square feet for each foot in length of the frontage of the building.

2. Attached business signs shall not ~~No sign shall~~ be attached to the side of the building that faces an adjoining residence. ~~All signs placed on a property whose use is permitted through the approval of a Conditional Use Permit are subject to Section 10.4E.<sup>B2</sup>~~

3. In addition to the provisions herein, electronic signs shall conform to the criteria outlined in Section 10.7.

### C. Freestanding Business Signs

Freestanding business signs related to the subject land use are permitted, provided: ~~Individual business or industrial establishments may erect a freestanding business sign, provided~~

1. ~~¶~~The lot frontage is at least 40 feet.

2. ~~The~~One freestanding sign per street frontage is permitted. The total area for any sign or signs on one supporting structure shall not exceed ~~100~~300 square feet and the ~~maximum total~~ height of the sign structure shall not exceed 35 feet.

3. Freestanding business signs shall be located in such a manner that no part of the supporting structure is less than 25 feet from the street right-of-way, and that no part of the sign is closer than five feet to the right-of-way. ~~The total area for any sign or signs on one supporting structure shall not exceed 300 square feet and the total height of the sign structure shall not exceed 35 feet. Businesses or industries having a frontage on more than one street may have an additional freestanding sign for each street frontage, provided that the total area for all freestanding signs does not exceed 600 square feet.~~

4. Freestanding business signs ~~Where the lot adjoins a residence and a freestanding sign is on the side of the business lot adjoining the residential lot, the sign shall not face an adjacent~~ the adjoining residence. ~~Signs whose use is permitted through the approval of a Conditional Use Permit are subject to Section 10.4E.~~

5. Properties which consist of ~~Structures which have~~ more than one ~~land~~ use shall be required to use a pylon sign. One ~~pylon sign~~ is permitted on each street frontage.<sup>8, 32</sup>

6. In addition to the provisions herein, electronic signs shall conform to the criteria outlined in Section 10.7

~~B-D. All outdoor advertising signs shall be spaced in such a manner that in an Industrial District there shall be a minimum of 300 feet between signs, and in the Rural District, where permitted, such signs shall be located in such a manner that there shall be 1,000 feet between signs. This shall be subject to Section 10.4E.~~

~~C-E. All signs accessory to a land use subject to the approval of a Conditional Use Permit shall be proposed within the Conditional Use Permit application and assessed by the Board of~~

Commented [AB1]: ZTA16-02

Commented [AB2]: ZTA16-02

~~Zoning Appeals at the required Public Hearing. Such signs shall be maintained at least 1,000 feet between signs. Consideration of the placement of such signs with less than 1,000 foot intervals shall be determined by the Commercial or Residential Uses adjacent to the subject site. Commercial uses adjacent to the subject site may allow spacing intervals of 300 feet. Any variance from this standard shall require consideration and approval by the Board of Zoning Appeals.~~<sup>2, 17, 21, 22, 23</sup>

~~D.F. No outdoor advertising sign shall be placed closer than 300 feet to an intersection on a dual or proposed dual highway or within 100 feet of any other intersection; provided, however, that such signs may be affixed to or located adjacent to a building at such intersections in such a manner as not to materially cause any greater obstruction of vision than caused by the building itself. No business sign shall be so located to obstruct the vision of traffic using entrance ways, driveways, or any public road intersection.~~

~~E.G. All outdoor advertising, excluding billboards subject to Section 10.4H, shall comply with front yard setback provisions in the districts in which they are permitted.~~

#### ~~F. Billboards~~

- ~~1. No billboard shall be closer to any public highway right of way than 300 feet.~~
- ~~2. Placement of a billboard must be in a location that is within 800 feet of an existing business.~~
- ~~3. There shall be a minimum of 1000 feet between billboards.~~
- ~~4. A billboard shall be no closer than 500 feet from a church, school, or cemetery.~~

### **Section 10.5 Signs Requiring a Special Exception PermitZoning Certificate<sup>2</sup>**

~~All Zoning Certificate applications for signs may be approved by the Zoning Administrator if in conformance with the regulations.~~<sup>17, 21, 23</sup>

The following signs shall require processing a Special Exception Permit before the Board of Zoning Appeals pursuant to Section 6.5. Any deviation from the provisions of this section shall require consideration and approval by the Board as part of the Special Exception application.

#### A. Off-Premises Signs

Signs approved by the Board shall adhere to the following:

1. Off-Premises Signs shall not exceed 60 square feet and shall be no more than 25 feet in height.
2. When located in the commercial/industrial zoning districts, there shall be ~~All outdoor advertising signs shall be spaced in such a manner that in an Industrial District there shall be a minimum of 300 feet between signs.~~
3. ~~When located in the , and in the Rural/residential zoning D districts, where permitted, such signs shall be located in such a manner that there shall be 1,000 feet between signs. This shall be subject to Section 10.4E.~~
4. Off-Premises Signs ~~All outdoor advertising, excluding billboards subject to Section 10.4H, shall comply with front yard setback provisions in the districts in which they are permitted.~~
5. Off-Premises Signs shall not be located ~~No outdoor advertising sign shall be placed closer than 300 feet to an intersection on a dual or proposed dual highway or within 100 feet of any other intersection; provided, however, that such signs may be affixed to or located adjacent to a building at such intersections in such a manner as not to materially cause any greater obstruction of vision than caused by the building itself. No business sign shall be so located to obstruct the vision of traffic using entrance ways, driveways, or any public road intersection.~~

6. In addition to the provisions herein, electronic signs shall also conform to the criteria outlined in Section 10.7.

#### B. Billboard Signs

Signs approved by the Board shall adhere to the following:

1. No billboard sign face shall exceed a total of 300 square feet in surface area including trim, nor shall it contain more than one message per sign face.
2. No billboard sign shall exceed 35 feet in height.
3. No billboard shall be closer to any public highway right-of-way than 300 feet.
- ~~4.~~Placement of a billboard must be in a location that is within 800 feet of an existing business.
- ~~2.~~5. There shall be a minimum of 1000 feet between billboards.
6. A billboard shall be no closer than 500 feet from a church, school, or cemetery.
- ~~3.~~7. In addition to the provisions herein, electronic signs shall conform to the criteria outlined in Section 10.7.

#### C. Electronic Signs

Electronic Signs located in the Rural, Residential Growth, and Village zoning districts shall require a Special Exception Permit unless included as part of a Conditional Use Permit application per Section 10.6. Electronic Signs shall conform to the criteria outlined in Section 10.7.

### **Section 10.6 Conditional Use Permit (CUP) Signs**

~~All signs accessory to a land use subject to the approval of a Conditional Use Permit shall be proposed within the Conditional Use Permit application and assessed by the Board of Zoning Appeals at the required Public Hearing. Such signs shall be maintained at least 1,000 feet between signs. Consideration of the placement of such signs with less than 1,000 foot intervals shall be determined by the Commercial or Residential Uses adjacent to the subject site. Commercial uses adjacent to the subject site may allow spacing intervals of 300 feet. Any variance from this standard shall require consideration and approval by the Board of Zoning Appeals.~~<sup>2, 17, 21, 23, 32</sup>

Signs associated with a Conditional Use Permit application shall be assessed by the Board of Zoning Appeals as part of the CUP process per Section 6.3. Any deviation from the provisions of this section shall require consideration and approval by the Board as part of the CUP application. Signs approved by the Board shall adhere to the following:

- A. There shall be a minimum of 300 feet between signs when located in the commercial/industrial zoning districts.
- B. There shall be a minimum of 1,000 feet between signs when located in the rural/residential zoning districts; however, a minimum of 300 feet between signs may be permitted provided the adjacent land use is a commercial/industrial land use.
- C. Signs shall comply with the front yard setback provisions in the districts in which they are permitted.
- D. In addition to the provisions herein, electronic signs accessory to a CUP application shall conform to the criteria outlined in Section 10.7.

## Section 10.7 Electronic Signs

Electronic Signs are permitted in any commercial and/or industrial district. Electronic Signs located in the Rural, Residential Growth, and Village zoning districts shall process as a Special Exception before the Board of Zoning Appeals per Section 6.5. Any electronic sign accessory to a Conditional Use Permit application shall comply with Section 10.6 and the criteria outlined in this section. When permitted, Electronic Signs shall conform to the following criteria:

- A. The message or image shall be static, displayed for a minimum of 15 seconds and shall not be animated by scrolling, flashing, or other similar non-static displays.
- B. The message or image change shall occur simultaneously for the entire electronic sign face without any special effects. The time to complete the change from one message to the next is a maximum of one second.
- C. Electronic signs shall contain a default mechanism that will cause the sign to revert immediately to a black screen if a malfunction occurs.
- D. An electronic sign may not be animated, play video or audio messages, or blink in any manner.
- E. Electronic signs shall not exceed a maximum illumination of 7,000 nits during daylight hours and a maximum of 600 nits for the time period between ½ hour before sunset and ½ hour after sunrise as measured from the sign's face at maximum brightness.
  - 1. The applicant shall provide written certification from the sign manufacturer that the light intensity has been factory preset not to exceed the levels specified above, and the intensity level is protected from end-user manipulation by password protected software or other appropriate methods.
  - 2. The change from 7,000 nits to 600 nit shall be controlled by an automatic dimmer control system.
- F. There shall be only one electronic sign on each parcel of land. Off-premises electronic signs shall be subject to Section 10.5A.
  - 1. Community announcements, emergency alerts, weather, and time related messages are generally permitted and shall not be considered an off-premises sign.
- G. Electronic Signs shall not be located within 300 feet of a traffic light.
- H. Electronic signs shall not be located within 200 feet of the property line of a parcel with a residential structure. This setback does not apply to mixed-use buildings or residential structures located on the same parcel as a commercial development.
- I. Electronic signs proposed to locate adjacent to a lot in the Rural, Residential Growth, or Village zoning districts, or adjacent to residential structures in any zoning district, shall be oriented perpendicular to residential frontages. Electronic signs shall not be parallel to any residential structures in any zoning district.
- J. Electronic signs adjacent to lots in the Rural, Residential Growth, and Village zoning districts shall automatically shut-off by 10:00 p.m. and shall not turn on until 6:00 a.m.
- K. Electronic signs shall be FCC certified as required by Federal Law. A valid copy of the FCC Manufacturers Testing Certificate shall be submitted to the Office of Planning and Zoning as part of the Zoning Certificate application.

# REPORT ON DIGITAL SIGN BRIGHTNESS

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*Prepared for the Nevada State Department of Transportation, Washoe County, City of Reno and City of Sparks*

*By Jerry Wachtel, President, The Veridian Group, Inc., Berkeley, CA*

*November 2014*

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## PART 1

### Introduction.

The purpose of this report is to develop and provide support for recommendations for state regulations and city and county ordinances to address the “brightness” of digital advertising signs, both on- and off-premise. The report consists of two parts. Part 1 provides background and support information, including: definitions of key terms, differences in measurement approaches and why one is considered by experts to be more appropriate than the other, luminance levels of existing digital and traditional signs in Washoe County and the cities of Reno and Sparks, other issues of relevance that should be addressed in an ordinance, and references cited in support of the discussion. Part 2 provides proposed ordinance language based on the information provided in Part 1. This work was performed at the request of Scenic Nevada, which had no role in the performance of the project other than providing maps of sign locations for our site visit.

### Background.

As digital technology becomes more widespread for use in advertising signs, the public’s reaction, when offered spontaneously or surveyed objectively, is most negative regarding the frequency with which the message changes (known as *dwell time* in the industry), and the perceived brightness of these signs<sup>1</sup>. This document addresses only the latter issue.

The words “bright” or “brightness” are commonly used to describe the visibility of an object. We may say: *the sun is very bright today, or, that light (or sign, or painted surface, etc.) is too bright for my taste*. But “brightness” is not a term of science, and cannot be measured objectively. When discussing the “brightness” of objects, lighting and visibility experts use the terms *luminance* and *illuminance*, with the former generally agreed to represent scientifically, that which is commonly called brightness. Unfortunately for the layperson, these two terms, which appear so similar, actually refer to very different characteristics of light and its measurement. Before we can develop and define appropriate language for an ordinance to regulate the brightness of outdoor advertising signs (especially at night), we must define these terms, understand how different they are and explore why there is not unanimity among experts as to the most appropriate measurement for use in a given circumstance. We must then defend our choice with evidence-based documentation, and demonstrate how the measure should be used in the development and implementation of the lighting section of a sign code.

## Key Terms and Definitions.

Many experts have developed definitions of the terms luminance and illuminance in language meant to be understood by laypersons. In this section we will provide such definitions and place them into a meaningful context.

### Luminance.

Lewin, in a report prepared for the Outdoor Advertising Association of America<sup>2</sup>, defines luminance as follows:

Also known as photometric brightness, this is the “brightness” of the billboard as seen from a particular angle of view. It is measured in candelas per sq. meter, also termed “nits.”

While this is technically correct, it is not sufficient to assist a layperson in a full understanding of the term or how it is applied to signage. More communicative, albeit simplistic, definitions have been provided by others. For example, Clarion Associates and Clanton Associates<sup>3</sup> offer the following definition:

Luminance (is a) measurement of the brightness of the sign face.

And an Illinois organization known as IROL<sup>4</sup> states:

Luminance is a measure of the perceived brightness of a surface.

Most clearly, Garvey, et al,<sup>19</sup> working on behalf of the on-premise sign industry, describe luminance as:

The photometric that most closely depicts the psychological experience of “brightness.” Luminance can refer to either the light that is emitted by or reflected from a surface, and is an expression of luminous intensity (cd) over an extended area (m<sup>2</sup>). Like luminous intensity, *a source’s luminance is constant regardless of distance* (italics added). (p. 3).

The bottom line is that luminance refers to the amount of light that is coming from the sign. This may be light reflected off the sign by the sun in daylight and by floodlights at night (in case of a traditional static billboard), or light that is actually emitted by the sign itself (in the case of a digital sign). Regardless of whether the light is reflected or emitted, luminance is measured in units called *candela per square meter*, written as cd/m<sup>2</sup>. Luminance is often unofficially called *nits*. In measurement, 1 nit = 1 cd/m<sup>2</sup>. In the literature, lighting professionals will typically use the term cd/m<sup>2</sup> and laypersons will use nits. But they are equivalent. The instrument used to measure luminance is simply called a luminance meter or photometer. (The outdoor advertising industry calls it a “nit gun”). When we think

of how the human eye and brain perceive “brightness,” it is the measure of luminance that quantifies this perception.

### **Illuminance.**

Illuminance, conversely, is the measurement of light landing or falling on, a surface. For billboards (digital or traditional) the “surface” of interest is the eye of the driver (or pedestrian). The terms typically used to describe illuminance are *footcandles* (fc) or *lux* (lx). The instrument used to measure illuminance is called a lux meter.

### **Reflected Light vs. Emitted Light (Traditional Signs vs. Electronic Signs).**

Perhaps the most straightforward way to understand how digital signs differ from conventional or traditional signs is to study how they provide sufficient light for motorists to be able to read their message.

A traditional sign uses printed characters on a white (or other colored) background. The background may be the actual side of a building, or paper or vinyl sheeting attached to a sign surface. This same technology has been used for hundreds of years to print books, magazines, newspapers, and posters. These signs provide no light of their own. They can only be seen (and, therefore, read) by the light that shines onto, and reflects off, their surface. Traditional outdoor signs use the light from the sun and the sky to provide this reflection during daylight hours. At night, in order to be seen, these signs are commonly equipped with a number (typically 2-4) of powerful floodlights that shine onto the sign from above or below, providing sufficient reflectance so that they can be read. If you take a traditional book with you to the beach, you might find it *so* bright, and *so* reflective, that it is difficult to read without sunglasses, or without moving under the shade of an umbrella. Conversely, to read the same book at night, you need to have a reading light of some sort to provide sufficient reflectance (called luminous contrast) to be able to read it. Traditional signs work the same way.

But a digital sign is totally different. It generates its own internal source of light, and *emits* that light to make its message visible and readable. Today, digital devices of all types are in our lives everyday – televisions, mobile phones, computers, tablets, and e-readers. The vast majority of these digital devices are made readable by emitting light from within. The more light they emit, the brighter their display appears. In many ways, this technology leads to the opposite readability situation from traditional signs. In contrast to a traditional book or newspaper, which may be too bright or reflective to comfortably read under direct sunlight, an electronic book (or computer, cell phone, or digital advertising sign) must be turned on, and turned up to high power/brightness levels in order to be visible and readable in bright sunlight. If you take your e-reader to the beach, and don’t power it up high – you will be staring at a blank screen. Conversely, when indoors, or at night, where a

traditional book can't be read without supplemental (external) light, the digital version of that book needs only low power from its internal light source to be readable – and, if the digital book is turned up too high, it may be difficult to read because it is so bright and causes glare to the human reader. The same is true for digital signs.

This is summarized in the table below:

	Type of lighting required for reading in daylight	Type of lighting required for reading indoors or at night
Type of Device		
Traditional book, magazine, newspaper	Light reflected off the page by the sun or sky	Separate reading light
Traditional billboard or on-premise sign	Light reflected off the sign by the sun or sky	Floodlights mounted on the sign structure
Digital book, magazine, newspaper, cell phone, computer, tablet, e-reader	Emitted light from the device itself – with high power for bright conditions	Emitted light from the device itself- dialed down to reduce brightness and glare
Digital billboard or on-premise sign	Emitted light from the device itself – with high power for bright conditions	Emitted light from the device itself- dialed down to reduce brightness and glare

## Measuring Luminance and Illuminance

As reflects their different technologies, luminance and illuminance are measured differently. In the case of digital billboards, this measurement difference divides the billboard industry (which recommends illuminance) from researchers and the academic community (which recommends luminance). Further, whereas those State and local Departments of Transportation that consult with the billboard industry favor the use of illuminance, whereas those Departments (and the research arm of the Federal Highway Administration) that have developed standards based on empirical research favor the use of luminance.

### Measuring Luminance.

To understand luminance and how it is measured, pretend that our digital sign is like a flashlight shining its beam toward us within a dark room. If we want to measure the luminance of the flashlight, i.e. how much light it is emitting, or how

“bright” it is, we use a *photometer* that we aim directly at the flashlight. The photometer acts something like a high performance digital camera with a telephoto lens. The operator points the meter at the flashlight, looks through the viewfinder, and pulls the trigger to capture an instantaneous reading. Within the viewfinder there is a small circle in the center of the field of view that is superimposed on the scene being viewed. This circle represents the area of light that the meter will measure. (It is typically 1° or less). As long as this central circle “captures” light only from the flashlight beam and not the surrounding dark room, the meter will provide an accurate reading of the flashlight’s luminance. It does not matter how far away the meter is, or from what angle the reading is made – the only requirement that must be satisfied is that the central circle (the “acceptance” angle of the meter) reads only the flashlight beam and nothing beyond it. The reading provided will be specified in *candela per square meter*, or  $\text{cd}/\text{m}^2$ .



Figure 1 – A Typical Photometer  
(Shown reading 113.4  $\text{cd}/\text{m}^2$ )

When applying this technique to the measurement of luminance of digital billboards or digital on-premise signs, the photometer is the same; we simply substitute the digital sign for the flashlight. And, instead of the dark room, we take our measurement in whatever outdoor setting the sign is located. In this “real world” setting, it does not matter how large or small the sign is, how high off the ground or how far from the roadway it is located, or whether it is viewed against a bright

urban or dark rural background. As long as our photometer's sensor reads *only* the sign (or a selected portion of the sign – see below) of interest, all we need to do is point our photometer at the sign and read the resultant luminance value on the meter. We may think of the photometer like a telephoto lens in photography – it reaches out to capture small objects (in this case, light emitting diodes, or LEDs) in the distance. In short, it captures the light being emitted by or projected from, the sign itself.

Of course, in the real world, digital signs often present images with several colors simultaneously. In addition, such signs change their display, and consequently their colors, every several seconds (or minutes). And, for a given amount of power that is applied to the sign, certain colors will appear brighter (i.e. produce higher luminance) than others. Typically, colors such as white, yellow, and orange will appear brighter than colors such as red, blue, or green. Thus, if we want to know what the “average” or “overall” luminance of a digital sign is at any given moment, and if our photometer has a small sensor size, we will either need to take separate meter readings of each area of color and then find their average, or else move sufficiently far away from the sign that our photometer captures the luminance of the multiple areas of color all at the same time.

On the other hand, if our goal is to identify how bright the sign can possibly be – something we would want to know if we are developing a guideline, ordinance or regulation that identifies a maximum allowable luminance, then we need to measure the luminance with the sign set at its maximum power, and we need to read a white area of the display with our photometer. (Note that, unlike the measure of illuminance, it is not necessary to have the entire sign display white. As long as any portion is white, we can use the photometer to measure only that portion).

### Measuring Illuminance.

Let us now take the same example of the flashlight in the dark room. To measure its *illuminance* we will use an illuminance meter (typically called a *footcandle* (or fc) or *lux* (lx) meter, and we will measure the brightness of the flashlight's beam when that light is aimed onto a surface. In our measurement case, that surface is the meter itself, as it will substitute for the eye of a motorist or other road user. Moving out to the real world from the flashlight example, we will find that our fc meter is like a camera with a wide-angle lens, measuring light from a wide variety of sources, angles and distances simultaneously. It gives us a big picture view, but because it has no viewfinder, we cannot know exactly what we are measuring. The front (the sensor) of a footcandle meter looks like a Ping-Pong ball that has been sliced in half. The white, translucent, half-sphere that forms the sensor captures light from everything in front of it. Moving the meter in any direction (up/down, left/right, nearer/farther) will change the measurement because every such movement causes the meter to capture more or fewer light sources, and because the meter has gotten closer to some and farther from others, etc.

Because the fc meter captures light from everything in the scene in front of it, it is not possible, using the illuminance method, to measure the brightness of the billboard alone; we can only measure it within the context of every other source of light in the surrounding environment. This raises several concerns, discussed further in the next section of this report.



Figure 2: Two Typical Illuminance Meters  
Each displays a reading in Lux (lx)  
(Note the white “dome” that collects light, and the lack of a viewfinder)

### Pros and Cons of Measuring Luminance vs. Illuminance.

Expert opinion about whether to use luminance or illuminance to develop standards for digital billboard brightness is divided. There are two different schools of thought on the subject. The billboard industry, their contractors, and those Government agencies that have accepted industry arguments, believe in measuring illuminance. Universities, independent research institutions, and Governmental organizations whose codes and ordinances were based on empirical research, favor using luminance. It is interesting to note that the Federal Highway Administration has taken no official position on this issue, although it uses luminance in its own research<sup>5</sup>.

The key issues in this debate are discussed below.

### Equipment Cost.

Advocates of the use of Illuminance explain that the differences in cost between luminance and illuminance meters are dramatic. It is true that a good luminance meter may cost \$3000, whereas illuminance meters can be purchased for 10% of that price. This is, however, a misleading comparison, for several reasons, including:

- Labor (usage) costs are higher with illuminance meters because more time must be spent on site, since measurements must be taken with each sign fully lit as well as turned off.
- If the procedure recommended by the Outdoor Advertising Association of America (OAAA) is used (see footnote below), then two persons are needed when using an illuminance meter, whereas a luminance measurement can be completed by a single individual.
- Specialized equipment, such as a bucket truck, may be required to measure illuminance because meter readings must be taken from precisely specified distances, and there may be no accessible or safe locations at which the crew needs to stand on or near the roadway surface.
- Since such meter readings need not be taken frequently, it is possible for the responsible agency to rent a meter only for the time needed, thus eliminating purchase costs for a luminance meter.
- It is possible for an agency to own only a single luminance meter, and to make it available to all departments as needed; or multiple agencies can share the same meter as required.
- A system that has worked well in other Government applications could work well here. Simply put, as part of a sign permit application process, the sign owner or operator would certify to the cognizant Government agency that the sign in question complies with all luminance (or illuminance) requirements. This removes the requirement that the Agency field check all signs for compliance. On a complaint-driven basis, the Agency may perform such field tests with a rented or borrowed meter.

#### **Calibration.**

If Government agencies are to impose enforceable regulations on digital sign brightness, it is important that the equipment used to measure such brightness levels for compliance provides readings that are valid and reliable. With photometers, this assurance is predicated on the use of periodic, third party calibration and certification. Inexpensive illuminance meters are unlikely to offer a guarantee of the precision of their meter readings sufficient to support such calibration/certification.

Luminance meters, which are generally more expensive than illuminance meters, are typically calibrated at the factory and sold with documentation of their precision, and thus are amenable to such periodic recalibration. It is suggested that a Government agency investigate, in advance, the feasibility of calibration for any meter that might be considered for use (including rental equipment).

### Procedures that must be followed in the Field.

There are large differences between luminance and illuminance measurements that must be followed when preparing for, and making, field measurements. These are outlined below.

#### *Meter Placement.*

**Luminance.** To take a luminance reading of a billboard or on-premise sign, the individual performing the measurement simply aims the meter at the sign, being sure that the central reading circle in the meter's viewfinder covers only the area of the sign that is of interest. The meter can be used at any safe and convenient distance from the sign, at any height, and at any angle to the sign.

**Illuminance.** According to Lewin, who developed this approach on behalf of the OAAA, and which the OAAA and many of its member billboard companies now endorse, the illuminance meter must be placed at a precise distance from the sign being measured, a distance determined by the size of the sign, and this same distance must be used when measuring any and all signs of a given size. According to Lewin, the following meter placement distances are required<sup>2</sup>:

Billboard Size (ft.)	Meter Reading Distance (ft.)
11x22	150
10.5x36	200
14x48	250
20x60	350

Lewin further notes that these measurements are to be taken with the meter facing the sign perpendicularly, and held five feet (5') above grade. This selected elevation value was chosen because it represents "approximately eye level." Although this may represent the eye height of a standing person, the assumed eye height of the average driver (as determined by regulatory and standards setting bodies, is 3.5 feet).

There are many instances where it would be impossible for an individual to use an illuminance meter at the height and distance specified by Lewin and the OAAA, thus rendering this method infeasible in such circumstances. Figure 3 shows an urban digital billboard in a not atypical setting (on a tall pole so that the sign is at eye level of drivers on an elevated roadway) where illuminance measurements following the recommended practice could not be made.



Figure 3. A Digital Billboard in a Major North American City

#### *Time of Day for Brightness Measurement.*

**Luminance.** The luminance meter reading can be made at any time of day or night, although nighttime readings are recommended to ensure that they represent actual sign output.

**Illuminance.** Nighttime readings are required, and are further constrained by the operating hours of nearby businesses and street and highway lighting. Because meter readings must be taken with the billboard off, and again at its maximum bright white setting, the illuminance that can be attributed to the billboard can only be calculated by subtracting the meter reading with the billboard off from that with the billboard on as described above. Thus, it is critical that environmental lighting in the vicinity of the billboard (street lights, lights from other nearby businesses or billboards, window lights from commercial or residential structures, etc.) be on for both meter readings. Accordingly, the two readings must be taken in close temporal proximity, and it must be assured that such nearby lighting does not differ between the two readings. (It should be noted that sky brightness and moon conditions must also remain the same for each of the two readings).

Recently the OAAA proposed an illuminance-based measurement method that, it said, would not require the billboard to be turned off<sup>6</sup>. Simply stated, the OAAA suggested that: “A helper should position themselves (sic) about 7’ to 10’ in front of the light meter and hold up an opaque black sheet of material that is roughly 12” high by 40” wide. ... The sheet should be positioned so it blocks all light from the digital billboard but still allows the remaining ambient light to register on the foot candle meter.” Unfortunately, this recommendation demonstrates a lack of

understanding about how illuminance is measured or the difficulties of making such measurements in the field. Three examples illustrate our concern with this OAAA recommendation. First, since, as discussed above, there is no viewfinder on the typical illuminance meter, there is no way for the meter reading personnel to know where to position the black sheet. Second, if, as is likely, there are other light sources (street lights, other signs, traffic signals, etc.) in close proximity to the digital billboard being measured, then holding the black sheet such that it blocks the light emitted from the billboard will also block the light from these other sources, thus rendering the entire measurement erroneous. In addition, since the half-dome photocell accepts light from every direction regardless of source or intensity, it is highly likely that placement of the black sheet will also block some such sources, including those not near the billboard being measured but nonetheless important for the overall ambient measurement; this too will cause an erroneous reading. Third, as Lewin has suggested, and the OAAA has accepted, the meter must be placed at different distances depending upon the sign of the billboard being measured. Thus, it would be necessary for the black cloth to change in size and/or distance as well, yet OAAA proposes a single size and distance. It is also noted that there seems to be no recognition or endorsement by Dr. Lewin of the proposed OAAA approach.

Even if the OAAA's method could work, it requires the participation of a second person, thus increasing costs to the agency performing the measurement.

It is interesting to note that the on-premise sign industry, represented by the United States Sign Council (USSC) disagrees with the OAAA regarding such measurement<sup>13</sup>. The USSC endorses the luminance measurement methodology recommended by the experts cited above. In its "Model On-Premise Sign Code," USSC states:

The USSC standard for the measurement of on-premise sign illumination is Luminance. Luminance measures light output at its source, does not vary with ambient light conditions, and further can be objectively measured both during the sign fabrication process and after installation in the field to ensure adherence to the illumination requirements of this model (p. 3).

The USSC report continues:

This Model Code strongly recommends that other light measurement methods be avoided in regard to on-premise signs (for instance, an illuminance standard, or including ambient lighting conditions as a part of a complicated formula), because these methods do not account for true sign brightness which, in regard to traffic safety, is the primary determinant as to whether a sign is visible and legible to the motorist (p. 49).

### Converting Illuminance to Luminance.

Ironically, after explaining the benefits of measuring illuminance, Lewin ultimately recommends the conversion of the obtained illuminance readings into luminance values, thus begging the question of why the far simpler and more direct method of measuring luminance was not followed in the first place. In a section of his report<sup>2</sup> titled “Allowable Average Luminance and Billboard Size,” Lewin states: “For any given billboard size, formula 1 can be used to compute the allowable average luminance (note that he does not refer to allowable *maximum* luminance, which is the proper purview of an ordinance) by incorporating the suggested distance value from Table 2. The results for the standard dimension billboards are provided in Table 3.” We have reproduced his table below:

Billboard Dimensions (ft.)	Distance (ft.)	Luminance (cd/m <sup>2</sup> )
11x22	150	300
10.5x36	200	342
14x48	250	300
20x60	350	330

As will be seen below, we consider these luminance values to be 2-3 times greater than necessary for *maximum* luminance needs (and recall that Lewin’s values represent *average* luminance values). Nonetheless, it is interesting that Lewin’s elaborate and difficult to employ methods ultimately lead to luminance, not illuminance, recommendations.

### Setting a Standard for Limits on Brightness– What Criteria Should be Used?

It goes without saying that digital signs should operate with sufficient luminous intensity both during the day and at night that they can be comfortably seen and easily read by approaching motorists and other road users. Reasonable luminance values associated with this legibility criterion are well understood based on extensive research, and are discussed below.

There are, however, other criteria that might reasonably be employed in any consideration of roadside digital signage brightness, and the proper criterion to use must be determined by the Agency’s objective for setting limits.

For example, astronomers and environmentalists are concerned about the darkness of the night sky, and the possible adverse effects of billboard brightness on this objective. This phenomenon is known as “light trespass.” This term refers basically to the light of a digital sign that spreads beyond the sign itself, and brightens what

would otherwise be a dark sky. Closely related to this criterion is the spread of light from a sign into the windows of nearby buildings, particularly residences. This is also a form of light trespass, but the concern here is primarily with horizontal trespass, whereas dark sky concerns reflect vertical trespass. It is interesting to note that Lewin's methodology and his resultant recommendations are, in fact, based on a standard for light trespass rather than a standard relevant to roadways and driving<sup>2,4</sup>. Although the use of a light trespass standard is of interest to dark sky advocates and to those concerned about light and glare from billboards entering residential windows at night, it is the wrong standard to use when developing brightness criteria for signs to be viewed by road users. The standard that Lewin applied was based essentially on a Technical Memorandum from the Illuminating Engineering Society of North America (IESNA) titled: "Light Trespass: Research, Results and Recommendations"<sup>15</sup>. But, as Luginbuhl points out, the IESNA already had in place a standard that was directly applicable to billboards, titled: "Recommended Luminances for Poster Panels, Painted Bulletins, and Other Advertising Signs"<sup>16</sup> and this standard recommended illuminance levels for billboards that are "consistent with luminances of 45-111 nits." Conversely, following the standard cited by Lewin, billboards could reasonably be expected to achieve luminance levels of 300-350 nits, a level some 3-6 times higher than is necessary or desirable for roadside advertising signs.

Of all of the complaints that motorists express about digital signs, excessive sign brightness is one of the two issues that cause the greatest concern<sup>1</sup>. (The other is the distracting nature of a rapid change of message, but that is outside the scope of this paper). Interestingly, and of direct relevance to the brightness issue, this level of motorist annoyance with digital signs does not extend to traditional fixed billboards. Traditional signs, illuminated at night by one or more floodlights, have never to our knowledge been the subject of motorist complaints, and yet such signs are highly readable, even at highway speeds. In short, as discussed below, motorist complaints about digital billboard brightness levels stems not from the technology used, but rather for the simple reason that digital billboards (and many on-premise signs) are typically set at luminance levels that are far too high at night – and these excessive levels not only cause driver discomfort, but also make the billboards more difficult to read, an issue that, at first, seems to be counterintuitive.

Given the primary concern for driver and traffic safety, we must address the potential consequences of light emitted from the sign that can cause several adverse impacts on road user behavior and performance. Excess sign luminance can lead to any (or all) of the following impacts:

- Beyond certain luminance levels, brighter signs become more difficult to see and to read, thus defeating the advertiser's specific purpose (if the motorist chooses to ignore the sign), or contributing to potentially dangerous levels of distraction (if the motorist expends greater time and effort to read it). Although it might seem counterintuitive that brighter is not necessarily better, this has been demonstrated over decades of research, conducted

primarily to ensure optimum legibility of official highway signs<sup>7,8</sup>.

- Signs that are substantially brighter than other objects in the driver's field of view tend to attract the driver's gaze at the expense of, not only other advertising signs that may be within view, but every other object in the field of view including objects critical to safe driving such as traffic signals, and the taillights, turn signals, or brake lights of other vehicles.
- Signs that are excessively bright can cause "discomfort glare" or "disability glare," terms of science that describe a person's resultant temporary inability to recognize and respond to important objects in the field of view.

As described by Allen, et al<sup>14</sup>, nearly 50 years ago, "... the data suggested that high-luminance signs can change the adaptation level of the eye (or the pupil size, or both). This finding suggests that the driver's vision would be impaired for other tasks requiring dark adaptation. It seems unwise to install unnecessarily bright signs that are unpleasant to the driver and may impair his vision" (p. 33).

Of course, more recent research has also addressed this question. For example:

- The State of Queensland, Australia, in promulgating its outdoor advertising regulations, stated: "Research has indicated that brightness from illuminated Advertising Devices directed at road traffic should be minimized under all conditions" (p. D-2)<sup>17</sup>.
- Austroads, the Association of Australian and New Zealand Road Transport and Traffic Authorities, in a comprehensive recent study,<sup>18</sup> stated: "Signs that have luminance levels that are high relative to other objects in the environment are likely to gain preferential attention and be particularly good at capturing attention when they change. As a result, digital signs should have luminance levels no greater than any other sign and preferably lower than non-changeable signs" (p. 18).
- Clarion Associates and Clanton Associates<sup>3</sup>, reviewed "national studies by the Federal Highway Administration (FHWA) and a review of recent EAS (the city of Pittsburgh's term for digital billboards) ordinances in other communities." As a result, they recommended that the city adopt a "day/night brightness restriction of 1000 nits/100 nits maximum from any element on the sign" (p. 6).
- These same authors cited a FHWA study "of the potential safety impacts of electronic billboards" which concluded that: "a brightness of 30 nits was sufficient to view the message on an electronic billboard at 650 feet at night and 1000 nits was sufficient during the day" (p. 13).

- Luginbuhl, et al<sup>7</sup> performed a review of Lewin's work, measured brightness levels of existing billboards in Arizona, and examined IESNA (Illuminating Engineering Society of North America Standards), and reached the following conclusions: "Unlike previous technologies, these signs (digital LED billboards) are designed to produce lighting levels that are visible during the daytime; should too large a fraction of this brightness be used at night, serious consequences for driver visibility and safety are possible. A review of the lighting professional literature indicates that drivers should be subjected to brightness levels of no greater than 10 to 40 times the brightness level to which their eyes are adapted for the critical driving task. As roadway lighting and automobile headlights provide lighting levels of about one nit, this implies signage should appear no brighter than about 40 nits. Standard industry practice with previous technologies for floodlit billboards averages less than 60 nits, and rarely exceeds 100 nits. It is recommended that the new technologies should not exceed 100 nits."
- Carhart<sup>4</sup> concluded: "All self-luminous outdoor signs should be subject to surface luminosity limits both during the daytime and nighttime hours. During the daytime, based on normal daylight illumination, a maximum of 5,000 nits will keep luminous signage balanced with the surrounding landscape. During the nighttime hours, a luminosity limit of 150 nits will provide a surface brightness for digital signs which is comparable to the nighttime signage which is widespread across this nation, and is in line with the sign illumination level recommendations of the Illuminating Engineering Society of North America (IESNA). If the nighttime luminance setting and limit is based on the sign in question being set to a display full white, full brightness field, a limit as high as 200 nits for this method of calibration and testing is suitable. Incremental luminance limits between the nighttime limit and the full sunlight limit may also be specified for overcast or foggy days, or for dusk; or regulations may require an automatic control of sign luminance based on the ambient lighting condition, to throttle the sign luminance between the sunny-day and night maximums" (p. 10).
- Freyssonier, et al<sup>8</sup> studied "the preferred luminance of simulated outdoor signage for legibility and acceptability under nighttime viewing conditions," and concluded that sign luminances of no more than 100 cd/m<sup>2</sup> were found to optimize legibility and acceptability, even when competing signs were present" (p. 6).
- Bullough and Skinner<sup>9</sup> reviewed the *IESNA Lighting Handbook* that "contains recommendations for illuminating billboard signs and other large advertising panels. These recommendations are based on two factors: the surrounding location (bright versus dark surroundings, as might be found in urban and rural settings, respectively), and the average reflectance of the information on the billboard." The authors state that use of the latter factor is

impractical, because information on digital billboards is constantly changed, and a message that is dark in color at one moment could be replaced with one that is light in color the next. Because these IESNA recommendations are based on the sign achieving “sufficient conspicuity,” and since the power supplied to the billboard is unlikely to be changed based on the color of the message being displayed at any given time, the authors believe that it is reasonable to expect that “many billboard exterior lighting systems (will) provide the higher illuminance recommended by IESNA.” Employing an equation to convert IESNA’s illuminance recommendations to luminance values, the authors conclude that, for bright surroundings and an all-white sign face with reflectance of 0.8, the upper limit for luminance would be 250 cd/m<sup>2</sup>, and for dark surroundings, the same all white sign face would have an upper limit of 130 cd/m<sup>2</sup>. Reviewing the marketing literature from two manufacturers, the authors found that one cited the IESNA recommendations verbatim, whereas the other chose an upper limit roughly mid-way between the two values – the equivalent of 200 cd/m<sup>2</sup>. The authors suggested that several caveats should apply to measurement of digital billboard luminance in the field. These are: (1) Because LED output is related to ambient temperature (lower temperatures result in higher light output), measurements should be made at night if maximum luminance levels are being measured, e.g. for code compliance; (2) for the same reason, digital signs should be measured when the sign display is mostly white. Two potential issues that proved to be of no concern were: (1) In all but the brightest urban environments, ambient light in proximity to the sign being measured would not add significantly to billboard luminance; and (2) It is reasonable to expect that the luminance of the sign when measured directly in front of it is similar to its luminance at the angles from which it is expected to be seen (and possibly measured) from the roadway.

- In a study for the United States Sign Council (an organization of the on-premise sign industry), Garvey, et al<sup>19</sup> wrote: “Based on a review of the literature, Sivak and Olson (1983) suggested an optimal nighttime sign legend luminance of 75 cd/m<sup>2</sup> and a minimum of 2.4 cd/m<sup>2</sup> for black on light (negative contrast) signs. With light-on-dark (positive contrast) signs, Garvey and Mace (in press) found 30 cd/m<sup>2</sup> to provide maximum nighttime legibility distance (p. 26).
- The same authors<sup>12</sup> developed what they called “model guidelines for visibility of on-premise advertisement signs.” Citing a number of different sources, the authors reported that, for black characters on a light background (“negative contrast”) signs, the optimum nighttime legend luminance level was 75 cd/m<sup>2</sup> with a minimum of 2.4 cd/m<sup>2</sup>, and for light on dark (“positive contrast”) signs, the maximum legibility distance was achieved at 30 cd/m<sup>2</sup>. At the end of their report, in a section in which they specified their visibility

guidelines, they wrote:

**Nighttime Sign Luminance is Between 30 and 75 cd/m<sup>2</sup>**

Nighttime sign luminance refers to message brightness with positive-contrast signs and background brightness with negative contrast signs. As with daytime internal contrast, and for the same reasons, falling below or *exceeding recommended nighttime luminance values will result in a loss in legibility distance* (italics added).

It is interesting to note, however, that despite the Kuhn, et al work on behalf of the USSC, the sign council continues to recommend a nighttime maximum luminance level of 750 cd/m<sup>2</sup>, a value more than ten times greater than their own consultants recommended<sup>13</sup>.

## Other Issues for Regulation.

### Daytime Luminance Limits.

Whereas traditional outdoor advertising signs obtain their daytime luminance from natural light from the sun and sky, digital (LED) signs must receive high power in order to be visible in daylight. Nonetheless, too much power will render such signs excessively bright, and could cause temporary vision difficulties due to glare. The sun in daylight is considered to have a brightness of approximately 6500 nits, and outdoor advertising signs with luminance values in the range of 5000-7000 nits are acceptable. However, there is no need for signs to achieve such luminance levels in order to be visible and legible to motorists. In our measurements of signs in Washoe County, we measured one internally illuminated sign with daytime luminance averaging 1527 cd/m<sup>2</sup>, and it was highly visible. And researchers at Pennsylvania State University<sup>19</sup>, working for the on-premise sign industry, reported on an earlier study that found that “daytime legibility distance continued to improve with increases in luminance up to 850 cd/m<sup>2</sup>, after which performance leveled off” (p. 26). Finally, several manufacturers of digital signs promote the fact that their signs can achieve luminance levels of 11,000 nits or higher, far too bright for even a cloudless day. Since the power demands and cooling requirements for digital signs increase with the amount of light that they must produce, there is nothing to be gained from powering these signs to higher levels than necessary during daylight hours.

### Malfunctions.

All digital signs, particularly those that are controlled remotely and wirelessly, are at risk for malfunctions or temporary failures that can affect that integrity of the display. Such malfunctions may be manifested in display segments that appear to flash or scintillate, and this can increase the risk of driver distraction because of

excessive brightness, or the flashing appearance of the display. Accordingly, it is imperative that any malfunctions or failures of any software, hardware, firmware, or communications component of the display result in a “fail-safe” condition – one in which the display turns off (or fully dark) until the malfunction is repaired.

## How Bright are Current Roadside Commercial Signs?

The nighttime luminance of outdoor advertising signs, both on- and off-premise, and both digital and traditional, have been measured by independent experts in Arizona, New York, Pennsylvania, Delaware, California, and Nevada. All such measurements were made using  $\text{cd}/\text{m}^2$  as the measurement criterion, and all who reported the equipment used specified the use of a Konica/Minolta LS-100 or LS-110 digital luminance photometer. A summary of these measurements is provided here:

- In Illinois, three traditional billboards averaged 63.3; the range was 46-76.
- In Arizona, 55 traditional billboards averaged 53.3; the range was 6-235.
- In New York, six traditional billboards averaged 123.6; the range was 4-240.
- In New York, four LED billboards averaged 225; the range was 160-320.
- In Washoe County, Nevada, on September 22, 2014, 16 traditional billboards averaged 59.8; the range was 2.2-291.
- In Washoe County, Nevada, on September 22, 2014, seven LED billboards averaged 1,291; the range was 107-5,390.
- In Washoe County, Nevada, on October 18, 2014, 11 traditional billboards averaged 51.1; the range was 2.1-240.
- In Washoe County, Nevada, on October 18, 2014, eight LED billboards averaged 1,318.2; the range was 44-4,440.
- In Washoe County, Nevada, on October 18, 2014, three fixed, internally illuminated signs averaged 191.3; the range was 5.3-523.
- In Washoe County, Nevada, during daylight on October 19, 2014, one fixed, internally illuminated sign measured 1527; the range (depending on cloud cover) was 1391-1776.
- In Washoe County, Nevada, during daylight on October 19, 2014, one digital sign averaged 4442.3; the range was 4072-4888.

There are several insights that can be drawn from this array of measurements. These include:

- Traditional billboards in Washoe County present luminance values within the average range of similar signs in other states.
- None of the traditional billboards measured in Washoe County presented any visibility or legibility concerns, even though several of these signs had luminance values below 5 cd/m<sup>2</sup>.
- Digital signs in Washoe County, however, exceed similar digital signs in New York State (the only other jurisdiction in which such measurements have been taken) by 5-6 times.
- One digital billboard in Washoe County measured only 44 cd/m<sup>2</sup>. Yet, there was no difficulty seeing or reading this sign.
- In both site visits to Washoe County, the digital signs (billboards and on-premise signs) averaged 12-13 times the level recommended by the many experts cited in this report. These signs are no easier to view or read because of their extreme luminance values, and they risk unsafe levels of driver distraction, discomfort or disability glare, and unnecessary levels of light trespass.

## Conclusions and Recommendations

The conclusions of this paper are based on a review of the technical and professional literature in the field, the measurement (our own and others') of existing luminance values for outdoor advertising signs in six states, good human factors practice regarding driver attention and distraction, susceptibility to glare, and demands of the driving task, and a review of applicable standards documents.

Our conclusions are clear, objective, and defensible, and they are in close accordance with all other experts except those involved with or employed by the outdoor advertising industry.

It is clear from our review, and from the work of other researchers cited herein, that the typical range of nighttime luminance values for traditional (floodlit) billboards is dramatically lower than that of digitals; in Washoe County, including the cities of Reno and Sparks, the average luminance of digital signs (both on- and off-premise) measured was more than 22 times greater than those traditional billboards measured. In Arizona, where 55 traditional billboards were measured, the average luminance value was 53.3, remarkably close to those in Washoe County. Although no measurements were taken of digital signs in Arizona, we would expect the

multiplier to be similar to that in Nevada. And yet, we are aware of no complaints about the luminance levels of traditional billboards, either, on the one hand, that they are too bright; and on the other that they are too dim to be read. For this, and other reasons described in this report, we see no reason why the luminance of digital billboards needs to exceed 100 nits in rural areas, and 150 nits in brightly lit urban areas.

In Part 2 of this report, we have taken these conclusions and recommendations and written them in the language of a potential ordinance for consideration by government staff preparing sign codes or regulations.

Below, we have summarized, in bullet form, the crux of these recommendations.

- Billboard brightness measurements should be made using luminance, not illuminance meters. Luminance meters used should have a viewfinder and an acceptance angle of one degree (1°) or less.
- Any meter to be used for brightness measurement should be tested and calibrated by an independent testing organization, and such calibration should be current when the meter is used.
- The measurement method can and should be applied to any outdoor signage, whether a billboard or on-premise sign, and whether digital or traditional.
- Measurements for daytime luminance should be made between two hours after morning civil twilight and two hours before evening civil twilight\*.
- Measurements for nighttime luminance should be made after the end of evening civil twilight and before the beginning of morning civil twilight\*.

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\* Civil Twilight is defined to begin in the morning, and end in the evening when the center of the Sun is geometrically 6 degrees below the horizon. This is the limit at which twilight illumination is sufficient, under good weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under good atmospheric conditions in the absence of moonlight or other illumination. In the morning before the beginning of civil twilight and in the evening after the end of civil twilight, artificial illumination is normally required to carry on ordinary outdoor activities<sup>10</sup>. Civil twilight is the definition of twilight most widely used by the general public<sup>11</sup>.

- Measurement of each sign should be made from a location that is as close to the sign as reasonably possible, although this is not mandatory.
- Measurement should be made with the meter's sensor filled with a section of the billboard displaying all white light.
- Any temporary failure or malfunction of any component of the display system that results in display segments that appear excessively bright or appear to flash or scintillate should result in an immediate conversion of the display to an "off" or all dark configuration, until such time as the malfunction is corrected.
- Daytime luminance values should not exceed 3,000 cd/m<sup>2</sup>.
- Nighttime luminance values should not exceed 100 cd/m<sup>2</sup> in rural areas or 150 cd/m<sup>2</sup> in brightly lit urban areas.
- The sign's light sensitive control system should be able to account for reductions in daytime sky luminance caused by clouds or storms, and should automatically reduce sign luminance proportionally.

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March 13, 2018

Jefferson County Planning Commission  
116 East Washington Street, Suite 200  
P. O. Box 716  
Charles Town, WV 25414

President Donnie Fisher and Members:

I am writing to express my opposition to the proposed text amendment (ZTA17-01) that would allow electronic signs in Jefferson County. As you know, I am Vice-Chair of the Board of Zoning Appeals, and as such I have some familiarity with the ordinance. However, I am writing as a home owner in Jefferson County.

Personally, I think these electronic signs are an abomination. They certainly have no place in residential, rural, and village areas of the county. Other than the folks who sell these signs, and the business people they have convinced to want them, how many county residents really think we would be better off with bright, electronic signs along our country roads?

Light pollution has become a problem, which many communities are looking to reduce, not expand.

A couple of technical points:

1. The draft states that only "static" signs are allowed, but with a change every 15 seconds, that does not seem "static" to me. Five or ten minutes would be a minimum for that status.
2. The draft purports to set brightness limits, but when I googled "7000 nits", one of the first hits was a vendor's video that bragged about its 7000 nit display as the "brightest display in the world." ([https://www.youtube.com/watch?v=xkL\\_tfj41W8](https://www.youtube.com/watch?v=xkL_tfj41W8)) One source suggested that the sun is less than 7000 nits. Not to nit-pick, but these limits (7000 day, 600 night) should be reduced substantially.<sup>1</sup>

At least, this draft needs further study and should not be recommended to the County Commission.

Sincerely,



Jeffrey C. Bannon

Submitted at 3/13/18  
PC meeting

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<sup>1</sup> A 2009 survey of static billboards in Arizona found that, out of 565 measured, 98% had a luminance of less than 150 nits, and 83% measured below 100 nits. <http://www.illinoislighting.org/billboards.html>

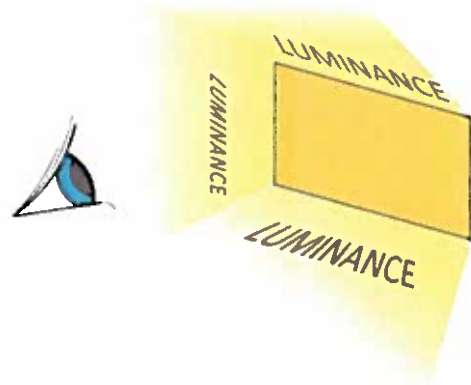
# Sign Brightness

## Measuring Sign Brightness

by Gregory Young

Apart from energy consumption, there are the important issues of light trespass and light pollution, which cause distraction, obscure stars in the night sky, and, like any other form of pollution, disrupt ecosystems and cause adverse health effects for humans and wildlife alike. Light trespass<sup>1</sup> is measured in two ways: luminance or illuminance. *Luminance* (measured in nits<sup>2</sup>) quantifies surface brightness, or the amount of light an object gives off. *Illuminance* (measured in footcandles<sup>3</sup>) quantifies that amount of light which falls onto an object.

By either measure, digital signage can create significant problems. "During daylight, an unlit static billboard will have a brightness which "fits in" with its surroundings; it will not cause excessive distraction because of excessive luminance" (Carhart, 2010, p.4). But, to capture drivers' attention, digital signs must be set to very high luminance levels, as they are essentially competing with the sun, which has a luminance level of 6,500 nits. If this extreme brightness is not modulated to fit nighttime conditions, we face issues including very high energy consumption during the day, light pollution in the evening, and potential driver distraction at all times. The OAAA (Outdoor Advertising Association of America) has guidelines to address brightness limits, but they are not mandated.



This sign (above) gives off light. Its **Luminance** is measured in **nits**.



This sign (above) is being lit by a light source. Its **Illuminance** is measured in **footcandles**.

<sup>1</sup> **Light trespass** occurs when unwanted light enters one's property, for instance, by shining over a neighbor's fence. A common light trespass problem occurs when a strong light enters the window of one's home from the outside

<sup>2</sup> **Nit**—term used to describe a metric unit of luminance. It is defined as candela per square meter ( $\text{cd}/\text{m}^2$ ). The unit is based on the candela, the modern metric unit of luminous intensity; and the square meter.

<sup>3</sup> **Footcandle**—Unit of light density incident on a plane (assumed to be horizontal unless otherwise specified), and measurable with an illuminance meter, a.k.a. light meter.

<b>Observed and Recommended Levels of Brightness</b>		
<b>Information Source</b>	<b>Product type</b>	<b>Luminance (surface brightness)</b>
(C. Luginbuhl study)	Typical Ambient Roadway Illumination	1 Nit
(C. Luginbuhl study)	Typical Floodlit Billboard	approximately 100 Nits
Digital Billboard: New Regulations for New Technology by Drew Carhart	Traditionally lit static billboards	98% were under 150 Nits, 83% were under 100 Nits (Arizona Study); 124 Nits average (New York Study)
IESNA recommendations	Recommendations for Digital Billboard Luminance	250 Nits (day), 125 Nits (night)
Outdoor Advertising Association of America (Ian Lewin Study)	Recommendations for Digital Billboard Luminance	300-350 Nits suggested (study based on light trespass readings)
Hewlett-Packard (Specifications)	47" LCD Digital Signage Display	500 Nits
Corn Digital (Specifications)	32" & 42" LCD Posters	500 Nits (32") 700 Nits (42")
Carhart study	Daytime sky (sunny)	5,000-7,000 Nits
Virginia Tech Transportation Inst.	The Sun	6,500 Nits
Senzen Top Technology Co., Ltd (specifications)	seires PH12 (14'x48' full-color LED billboard	8,000+ Nits
EraLED (Specifications)	Series P20 full-color LED billboard (assorted sizes)	8,500 Nits
ProVIDEO Billboard Panels (specifications)	Series 1515-4, 14'x48' full-color LED billboard	11,000+ Nits
Optec Displays (specifications)	model 1248, 14'x48' full-color LED billboard	11,000+ Nits
Optec Displays (specifications)	model 2040-5, 14'x48' full-color LED billboard	11,000+ Nits

### **Limiting Sign Brightness**

Proposed limits on sign brightness have caused much debate. Research provided by the Illuminating Engineering Society of North America (IESNA) states that drivers should be subjected to points of brightness no greater than 40 times the average brightness level of their general surroundings; this proportion is known as the contrast ratio. "As roadway lighting and automobile headlights provide ambient nighttime lighting levels of about one nit, this implies signage should appear no brighter than about 40 nits" (Luginbuhl, 2010, p.1). Surprisingly, the IESNA's own recommendations for signage luminance suggest limits between 250-1400 nits---greatly exceeding their stated maximum contrast ratio of 40:1.

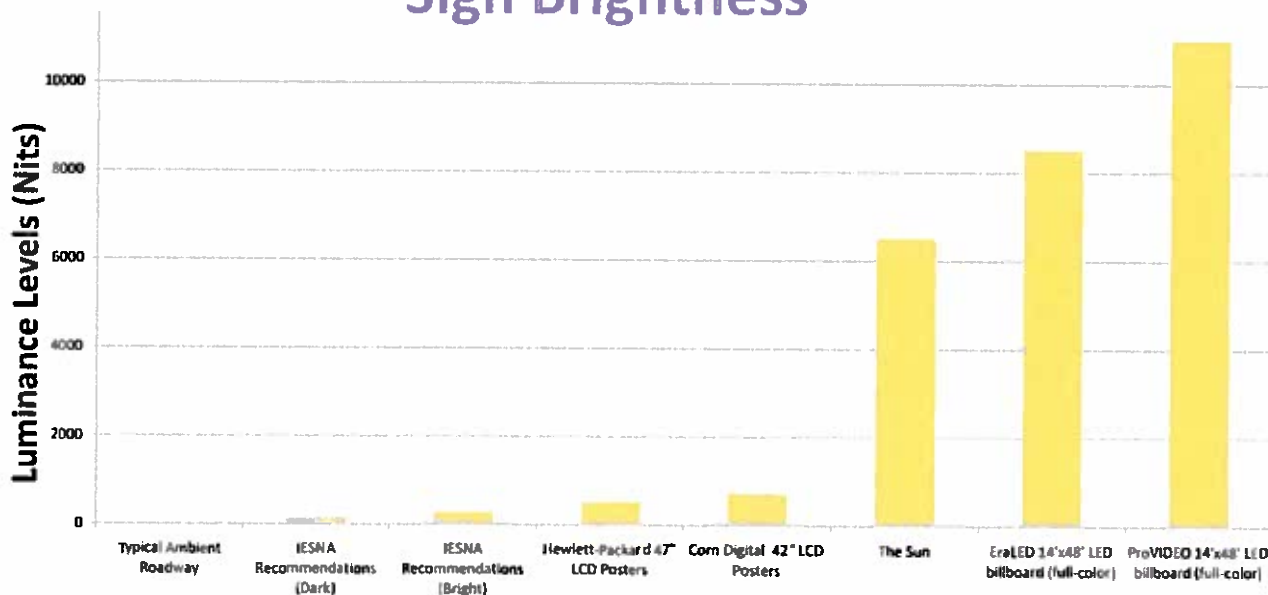
The OAAA, has deemed 300-350 nits an acceptable level of night brightness. However, their guidance is based on the use of the IEEE standard for light trespass (IESNA-TM-11-00), when, for reasons of traffic safety and glare in drivers' eyes, it should have been based on IEEE's standard for roadway sign lighting (IESNA RP-19-01).

Traditionally floodlit static billboards rarely exceed 100 nits; experts on both driver distraction and light pollution recommended that, as a means of compromise, the new technologies should not exceed this value. In many areas, including Philadelphia, brightness levels are currently unregulated, and many manufacturers publicize their signs' capabilities to reach up to 11,000 nits.

Digital signage advocates mention the horizontal louvers<sup>4</sup> included in many billboards as an effective measure to prevent light pollution. In reality, these louver systems were designed primarily to shade each diode from sunlight (thus increasing their prominence), not to limit nighttime glow.<sup>5</sup> As Luginbuhl states in "Lighting and Astronomy," horizontal light (that which is emitted between 0° and roughly ±20°, and not restricted by horizontal louvers) contributes even more to skyglow than light emitted at higher angles. The effects of lower-angle lighting—such as that used to captivate approaching drivers—are visible over a much broader area (Carhart, 2010).

A better option is to simply operate signs at less than maximum brightness. Not surprisingly, sign brightness and energy usage are directly related; beyond reducing light pollution and distraction, lowering luminance reduces total power consumption. One manufacturer experimented with running their digital displays at half-brightness; they were able to reduce power usage by nearly 40%, while maintaining full sign readability (Noventri, see in chart). Another option for reducing unnecessary brightness (and thus power usage) is to equip signs with sensors which automatically lower light output in accordance with atmospheric conditions. For example, sign brightness would mechanically be dimmed during dusk, early morning hours, or during cloudy or overcast weather. Again, OAAA does have guidelines for dimming, but they are not mandatory.

## Sign Brightness



<sup>4</sup> A **louver** is a slat that is angled to keep out rain, direct sunshine, etc. The angle of the slats may be adjustable or fixed.

<sup>5</sup> Retrieved from <http://www.optec.com>

**From:** Betty Myers  
**To:** [Planning Department](#)  
**Subject:** electronic signs  
**Date:** Sunday, March 25, 2018 9:05:36 AM

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Nature is beautiful including the sky but electronic signs are not and it is sad to sacrifice the former for the latter. If tourism is to be a major industry in the county, we should awe tourists with beauty. As you might guess, I hope you will do all possible to get rid of electronic signs.

Betty Myers  
53 Billmyer Mill Rd  
Shepherdstown, WV 25443

**From:** Mary Harrington  
**To:** [Planning Department](#)  
**Subject:** Amendment ZTA17-01 Electronic Signs  
**Date:** Monday, March 26, 2018 2:48:04 PM

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Good Afternoon,

My husband and I would like to discourage the use of static signs that illuminate. I don't mind static signs that turn every 15 seconds but, this is not Las Vegas. Please don't let our fabulous small town turn tacky with unnecessary brightly lit signs.

Thank you,

Mary and John Harrington



# Jefferson County, West Virginia

Office of Planning and Zoning  
116 East Washington Street, 2<sup>nd</sup> Floor  
Charles Town, WV 25414

Email: [planningdepartment@jeffersoncountywv.org](mailto:planningdepartment@jeffersoncountywv.org)  
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## Planner's Memorandum Planning Commission Meeting April 10, 2018

### 1) Zoning Ordinance Text Amendments

#### a) Landscape Standards

- Stakeholder meeting with staff held – draft amendment to be developed.

#### b) Parking Standards

#### c) WV45 Gateway Design Standards

- Expecting feedback input from Shepherdstown Planning Commission

### 2) Subdivision Regulation Text Amendments

#### a) Subdivision Regulations Amendments

- Staff initiated effort on larger amendment including reorganization of Sub Reg. sections is underway.

### 3) Upcoming PC meetings

#### a) Next Regular Meeting: **May 1, 2018** (\*\*different meeting date due to Primary Election)

- Madert Final Plat Amendment