

VERNON MYERS
MAYOR - COMMISSIONER

MARY LAWSON BROWN
VICE MAYOR - COMMISSIONER

ALLEGRA KITCHENS
COMMISSIONER

PHIL LEARY
COMMISSIONER

JAMES NORWOOD, JR.
COMMISSIONER



ELWIN C. "WOODY" BOYNTON, JR.
CITY MANAGER

BETSY JORDAN DRIGGERS
CITY CLERK

MATTHEW D. REYNOLDS
FINANCE DIRECTOR

GARY S. GETCHELL
CHIEF OF POLICE

MICHAEL LAMBERT
CHIEF FIRE DEPT

DONALD E. HOLMES
CITY ATTORNEY

Regular meeting 2nd and 4th Thursdays each month at 6:00 p.m.

February 13, 2012

TO MESSRS: MARY LAWSON BROWN, ALLEGRA KITCHENS, PHIL LEARY AND
JAMES NORWOOD, Jr.:

You are hereby notified that a workshop meeting of the Palatka City Commission is called to be held on February 23, 2012, at the regular meeting place of the Palatka City Commission, Palatka City Hall, 201 N. 2nd Street, Palatka, Florida, to commence at 4:00 p.m.

The purpose of the workshop is to:

1. Discuss potential changes to historic preservation ordinance, creation of a downtown historic district, and property tax exemptions for historic properties – Thad Crowe, Planning Director
2. Hear an Energy Efficiency and Conservation Strategy Presentation – Bob Taylor

/s/ Vernon Myers
Vernon Myers, MAYOR

We acknowledge receipt of a copy of the foregoing notice of a special meeting on the 13th day of February, 2012.

/s/ Mary Lawson Brown
COMMISSIONER

/s/ Phil Leary
COMMISSIONER

/s/ James Norwood, Jr.
COMMISSIONER

/s/ Allegra Kitchens
COMMISSIONER

PERSONS WITH DISABILITIES REQUIRING ACCOMMODATIONS IN ORDER TO PARTICIPATE IN THIS MEETING SHOULD CONTACT THE CITY CLERK'S OFFICE AT 329-0100 AT LEAST 24 HOURS IN ADVANCE TO REQUEST ACCOMMODATIONS.

201 N. 2ND STREET • PALATKA, FLORIDA 32177

PHONE: (386) 329-0100

www.palatka-fl.gov

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Agenda Item

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City of Palatka

Building & Zoning

201 N. 2nd Street

Palatka, Florida 32177

386-329-0103 • Fax 386-329-0172



MEMORANDUM

TO: Mayor, Vice-Mayor, and Commissioners

CC: City Manager

FROM: Thad Crowe, AICP
Planning Director

DATE: February 16, 2012

RE: Historic Preservation Program Workshop

EXECUTIVE SUMMARY

Staff proposes a package of incentives and regulatory actions in regard to its historic preservation program, as summarized below and described further in this memo.

Historic Preservation Ordinance. Staff recommends the following revisions to the existing ordinance:

- Development of user-friendly and graphically-based historic district design guidelines
- Streamline to allow for staff approval for ordinary maintenance and actions that are in keeping with the historic structures original appearance or historic district design guidelines (other actions go to Historic Preservation Board)
- Enact economic hardship provision
- Clarify applicability of ordinance (to contributing and noncontributing structures, define new construction)

Certified Local Government Program. Becoming a CLG will not be an undue burden to the City, and will open up opportunities for grant funding and technical assistance. Staff recommends the City submit an application with an enabling City resolution to the State Historic Preservation Officer for CLG designation.

Downtown Historic or Design District. Palatka's downtown is a remarkable collection of historic buildings that are in need of recognition and protection. Staff requests to solicit public input through the Main Street Board, Downtown Palatka Inc. and other organizations, and City advisory boards on alternatives ranging from a flexible "design district" to a local and National Register historic district for the downtown.

City Historic Property Tax Exemptions. These exemptions apply only to increased taxes attributed to appropriate historic renovation and rehabilitation, and can be an effective tool to attract investment in historic buildings, along with the Federal Tax Credit. Staff recommends the Commission consider an ordinance providing for a process and standards for such exemptions.

EXISTING CONDITIONS

Historic preservation has been instrumental in the revitalization of the City's riverfront neighborhoods. A 2002 study by the University of Florida documented the statewide employment and fiscal impacts of historic preservation, summarized below.

Annual Impacts of Historic Preservation

Category	Direct Investment	Jobs *	Income *	Local & State Taxes *
Historic Rehabilitation	\$350 million	10,443	\$317 million	\$50 million
Heritage Tourism	\$3.7 billion	107,607	\$2.314 billion	\$5.83 billion
Main Street Activity	\$64 million & 850 retail/service jobs	3,202	\$81 million	\$15 million
Historic Museums	\$58 million	1,989	\$54 million	\$9 million
Total	\$4.2 billion	123,242	\$2.766 billion	\$6.57 billion

* includes direct and indirect (multiplier)

Source: *Economics Impacts of Historic Preservation in Florida*, University of Florida, Center for Governmental Responsibility and Center for Urban Policy Research, September, 2002

Municipal Historic Preservation Regulation

The constitutionality of historic preservation ordinances has been upheld by the courts, going back to the landmark case of Penn Central Transportation Co. v. City of New York in 1978. This decision noted that "preserving structures and areas with special historic, architectural, or cultural significance is an entirely permissible government goal." Such regulation is allowable if ordinances promote a valid public purpose, do not deprive a property owner of all reasonable economic use of property, provide due process, comply with state laws, and apply equally to everyone. The City has an active historic preservation program, which is founded on a series of comprehensive plan policies and Municipal Code provisions that compel the City to identify and work to protect its historic resources.

Historic Registration

There are two types of historic designation: the National Register of Historic Places, and city/local historic designation. National Register status provides recognition of a site or district's historic significance and the ability to utilize federal rehabilitation tax credits, but does NOT offer any protection (except when federal or state funds are involved). Local designation does provide a measure of protection, with Section 54 of the Municipal Code requiring Historic Preservation Board approval for exterior changes of all structures (including fences and signs) and demolition of contributing historic structures in local historic districts. The following sites or districts are on the National Register, with some also locally designated:

- Bronson-Mulholland House (Madison St., listed in 1972) – also designated locally as part of N. Hist. Dist.
- Central Academy (1207 Washington St., listed in 1998)
- Larimer Memorial Library (216 Reid St., listed in 2008) - also designated locally as part of N. Hist. Dist.
- Old A.C.L. Union Depot (200 N. 12th St., listed in 1988)
- Palatka North Historic District (listed in 1983) – also designated locally

- Palatka Ravine Gardens Historic District (listed in 1999)
- Palatka South Historic District (listed in 1983) – also designated locally
- St. Marks Episcopal Church (listed in 1973) - also designated locally as part of N. Hist. Dist.

Despite having one of the most historically significant and relatively intact downtowns of comparably-sized Florida cities, Palatka’s is neither locally nor nationally registered.

Historic Preservation Ordinance

The City’s historic preservation ordinance, which is the previously referenced Municipal Code Section 54, provides for the following:

- Authorization and duties of Historic Preservation Board (HPB)
- Procedure for creation of local historic districts
- Certificate of Appropriateness process (HPB design review of new construction and exterior changes of contributing historic structures)
- Minimum maintenance of historic structures

The HPB meets on a monthly basis to provide the final say for exterior changes. Most of the Certificates of Appropriateness (COA) coming before the HPB are roof replacements, fences, porch alterations, and occasionally additions. COA criteria are the Secretary of the Interior’s Standards for new construction, renovations, additions, etc., as disseminated by the National Park Service. In general terms these criteria require that original or historic era building elements be retained whenever possible and that exterior changes be in keeping with the historic structures in terms of materials, textures, and colors. An important criterion that is sometimes ignored seeks to avoid creating “fake history” – additions and new structures should not imitate historic buildings and elements, but should be differentiated from historic structures in terms of materials and colors while at the same time not detracting from existing historic structures. Compatible new construction of this nature would consist of understated buildings that continue the general building height, mass, placement on the site, and window and door arrangement without providing “flashy” ornamentation that would upstage nearby historic buildings.

POTENTIAL CHANGES TO PRESERVATION PROGRAM

Historic Preservation Ordinance

Staff has observed the following preservation ordinance issues that merit consideration for change.

- Burdensome review procedures
- Vagueness of review criteria
- Lack of economic hardship provisions
- Clarification of applicability (historic/contributing vs. non-contributing, additions and new construction)

Review Procedures: At this time almost every exterior change must go before the Historic Preservation Board for COA approval, whether it is a simple picket fence or the replacement of a porch railing. This results in expense and delay for property owners and staff costs of processing such COAs. While it is not clearly stated in the ordinance, Staff has interpreted that replacement of “like kind” is not subject to the COA process. For example this allows a property owner to replace an existing galvanized sheet metal roof with the same. It

does not allow for the replacement of a 1960s-wrought iron porch railing on a Colonial Revival-style house with a more appropriate Doric column.

To streamline the review process, Staff has proposed to the HPB a three-tiered review system as follows:

1. Ordinary maintenance – no COA required for work not requiring a building permit (excluding fences)
2. Staff approval – not ordinary maintenance, but results in the original appearance of the building feature as it was originally built or likely to have been built, and also if specific design standards are met (more on this later)
3. HPB approval – not ordinary maintenance, does not result in the original appearance, or meet the design standards

This system would streamline the review process and provide an incentive for property owners following clear design standards that enhance the historic appearance of a structure. The HPB has indicated support of this approach.

Vague review criteria: while the Secretary’s Standards provide good general guidelines, they lack in specificity and do not provide property owners and the HPB with clear guidance in some cases. For example the Standards call for structure additions to “conform in appearance to the character” of the district while prohibiting such additions from being “obviously incongruous to the historic aspects of the surroundings.” Such language is subjective and can be interpreted very differently by property owners and individual HPB members. It is very important that the preservation ordinance provide understandable direction for property owners so as to avoid the prospect of an 11th hour denial after considerable resources have been expended on design plans by property owners.

Staff proposes to develop more specific and user-friendly design standards, which will be presented in graphic form whenever possible. Such standards would be approved by the HPB and ultimately the Commission, and would provide the basis for staff approval as previously noted.

Economic hardship. As previously stated, lacking an economic hardship provision could lead to ordinance challenges, taken to the extreme in the form of a property taking challenge. The ordinance does not allow the HPB to consider the impact of greater expenses on property owners when required to pursue specific historic rehabilitation techniques or materials. One recurring example is the cost of re-roofing metal shingle roofs, which is as much as two to three times the cost of a galvanized metal roof.

Staff proposes to develop an economic hardship provision, which would be included in the COA process.

Applicability. Most preservation ordinances identify contributing (historic) and non-contributing structures, while the City’s does not. This leads to confusion about what properties are under the purview of the ordinance. There is also no definition of “new construction,” which would clarify at what point the major renovation or rebuilding of a non-contributing structure reaches the level of COA review. Staff proposes to define terms such as “contributing,” “noncontributing,” and “new construction.”

Certified Local Government Program

The CLG program links three levels of government - federal, state and local - into a preservation partnership for the identification, evaluation and protection of historic properties. Since its inception in 1986, Florida's Certified Local Government program has assisted in the survey, designation, and preservation of thousands of historic and cultural resources and helped to increase public awareness of historic preservation. CLGs receive the following benefits:

Technical Assistance. The state Bureau of Historic Preservation provides ongoing technical assistance and training for CLG staff, preservation board members, and others, usually at no cost.

Local Project Review. CLG preservation boards and governing bodies are delegated required local review for historic ad-valorem tax exemptions projects (non-CLGs require state review).

Grant Funding. Eligible small matching competitive CLG grants up to \$50,000 include:

- Acquisition and development, including archeological excavation, building rehabilitation, stabilization, and planning for such activities.
- Historic survey, plan, and ordinance preparation.
- Community education (walking tours, brochures, school programs, etc.)
- National Register nominations.
- Historical markers.

These grants require a minimum 25% cash match, with the rest being in-kind services.

A CLG must meet the following requirements:

- Active preservation program (preservation board, local historic designation, design review)
- Provide State Historic Preservation Officer (SHPO) with 30-day notice of HPB meetings
- Submit HPB minutes and attendance records to SHPO within 30 days of meeting
- Notify SHPO of new historic designations or alteration of existing designations
- Notify SHPO of HPB membership changes
- Submit amendments to preservation ordinance to SHPO for review and comment 30 days prior to adoption
- Submit annual report

The City currently meets the requirements for CLG designation, and the reporting requirements do not represent an undue burden. CLG designation is supported by the HPB, DPI, and Main Street. The CLG agreement requires a resolution from the City Commission and an application (drafts are now complete) and the process for CLG designation takes six months to a year. If approved the City will enter into a memo of understanding with the SHPO.

Staff recommends that the Commission file an application and an enabling resolution to seek CLG status.

Downtown Historic District.

As previously stated, Palatka’s downtown has a remarkably intact collection of historic buildings ranging in construction date from the early 1880s through the 1940s. This area is neither nationally nor locally designated. This creates a blank space between the South and North historic districts in that there is no continuity in the identification and protection of historic resources between the two districts. Staff understands that there have been concerns in the past about the imposition of additional regulations on downtown businesses. In response to this it is important to note that there is a wide range of regulation philosophy, from the more strict regulations of most residential historic districts to a more flexible downtown design district model.

The baseline of regulation is a community standard, defined by property owners, citizens, and the Commission. The current status of regulations impacting downtown raises a real concern of compatibility, as there are no regulations to prevent the replacement of historic downtown structures with “strip-mall” or other incompatible development, or to prevent removing or covering historic design elements on existing buildings. A less restrictive approach can identify more significant structures and protect them accordingly, while allowing for the replacement of other historic structures with compatible construction. With this tactic, good design standards become more important than pure preservation – it may be easier to meet the design standards by preserving existing historic buildings, but it would also be possible to design new buildings to complement the unique character of the downtown. A more restrictive approach advances the National Register philosophy that historic preservation recognizes the importance of historic buildings as a collective whole including the humble and the grand. This would apply the current preservation ordinance standards that emphasize retaining existing downtown historic buildings.

Comparable jurisdictions have developed historic or design districts for their downtowns. The model of a traditional downtown historic district with preservation board review is used by cities like Daytona Beach, Deland, Fernandina Beach, and Oviedo. Cities like Apopka, Gainesville, Mt. Dora, and Tarpon Springs have used the downtown design district approach, with a blend of staff and planning board review and approval. a system.



Examples of graphic design standards

It is important to note that just recognizing a historic downtown's importance through the National Register and local historic designation also provides a point of pride and a tangible benefit to the community. Finally, two other important benefits of local and National Historic Registration include:

Ad-Valorem Property Tax Exemption: In 1992 the State authorized local governments to provide this incentive for federally or locally designated historic properties. There are three types of tax exemptions:

- ten-year exemption on increased City taxes caused by historic renovation
- ten-year exemption on ALL City taxes for properties occupied by nonprofits or governments when historic renovations exceed 50% of property value, and there is some public access (generally defined as at least open to public 52 days per year and other times by appointment)
- ongoing or time-defined exemption on 50% of City taxes for commercial properties that are publically accessible (public access in this case can be as lenient as the public viewing historic facades from the street)

The above exemptions can also apply to County taxes, with County Commission approval.

These tax exemptions are now allowed by Florida statute for individual property owners, but they must apply through the local government. These programs are not well known unless they are promoted locally. The reason for developing ordinances, as many Florida jurisdictions have done, is to encourage application by setting up a defined process. The important thing to remember is that approving such exemptions does not result in the loss of any existing tax revenue. The trade-off is the revitalization of historic buildings and the resulting potential increased business and visitation that goes with that, in exchange for a ten-year abeyance of taxes tied to historic improvements.

Tax exemption ordinances can be customized in the form of shorter time periods than the 10-year time frame, limiting exemptions to locally designated properties (recommended), requiring a maximum timeframe in which to complete the work (or risk losing the exemption), limiting the exemption to specific uses such as commercial buildings, restricting exemptions to a geographical area, etc. Exemption allowance can also be determined on a case-by-case basis, if there are sufficient criteria for consideration.

In the region, jurisdictions including Alachua County, Fernandina Beach, Gainesville, Jacksonville, New Smyrna Beach, Orange City, St. Augustine, and Volusia County have developed historic tax exemption ordinances.

Federal Tax Credit: renovation of historic buildings listed on the National Register can qualify for a tax credit equal to 20% of eligible rehabilitation costs. This applies to a substantial rehabilitation, which means that during a two-year or longer phased period rehabilitation expenses must exceed the greater of \$5,000 or the adjusted basis of the building (total property value minus land value).

NEXT STEPS

Staff proposes to hold workshops regarding a downtown historic or design district with interested property owners, merchants, and citizens through Main Street committees and board, Downtown Palatka, Inc., and any other interested groups. At such workshops Staff will solicit input on historic designation and design standards for the downtown. If there is general community support for something ranging from a design district and/or local and/or national historic district, Staff will bring ordinances and backup materials to the HPB, Planning Board, and ultimately to the Commission. In addition, if the Commission supports these actions, Staff will develop drafts of a historic tax exemptions ordinance and CLG resolution and application.

Agenda Item

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Robert E. Taylor
AIA Architect PA

710 St. Johns Ave
PO Box 267
Palatka, Florida 32177

Robert E. Taylor, Architect
Fl Corp Registration No. AAC000589
CA Registration No. RA007674
NCARB No.. 40804

23 February 2012

**SUBJECT: Energy Efficiency & Conservation Strategy
City of Palatka
Palatka, Florida**

Committees were developed based on a “**Comprehensive Plan**” approach:

Land Use Thad Crowe Deirdre Irwin Kraig McLane	Utilities Don Kitner Rhett McCamey Melvin Register Heath McArdle	Building Const. Paul Myers Joff Filion Wayne Annis Jeff Rawls	Energy Management Jeff Womble Scott Moyer Derek Hembree Bill Futch Bobby Payne
Transportation Boyd Thompson Sam Carr Myra Strange	Parks and Recreation Kraig McLane Jeff Norton Thad Crowe	Recycling. Steve Nataline	

OUR specific charge:

- **Create an Energy Efficiency and Conservation Strategy for the City of Palatka.**
- **Conduct workshops with the technical consultants to develop the Strategy.**
- **Gain the City’s approval for the Strategy.**

Vision - Sustainability. Meeting the needs of the present generation without compromising the ability of future generations to meet their needs.

Executive Summary:

1. **Education**, increasing awareness & public relations will benefit the environment and our society.
2. **Schools** must get involved in environmental education to help children understand the value of **natural resources and conservation.**
3. **Stimulate the Consumer** to consistently and conscientiously work towards energy efficiency and conservation
4. Use existing regulations, best practices and existing or **create new incentives.**
5. Adopt these goals and strategies to “**create a change in our lifestyle.**”
6. **Incorporate** these goals and objectives into the **Comprehensive Plan**

Identify/ evaluate and prioritize these options and opportunities:

LAND USE

Vision - New construction and renovations to be low impact development.

- a. Promote Green roofs as a redevelopment strategy.
- b. Adopt Green Home standards for new construction and retrofit guidelines.

- c. Include development standards that require or provide incentives solar-oriented design.
 - d. Reduce Water/Sewer tap fees to encourage connection to existing services.
1. **Enact an ordinance for landscaping and irrigation design** to lower the carbon footprint by lowering maintenance and improving irrigation efficiency.
 2. **Adopt Appendix “F”** of the Florida Building Code which contains criteria for irrigation design.
 - a. Adopting this standard should **upgrade** the quality of the **designer and the design**.
 - b. **Require drawings** to evaluate design and facilitate maintenance and repair.
 - c. Curtail use of St. Augustine grass. **Promote Xeriscaping** or use “**natural**” landscaping
 - d. Clean out un-used septic tanks and use as cisterns to collect / reuse rain water for irrigation.
 3. Educate consumers on **proper plant selection** and their site location.
 4. Educate consumers on **topsoil retention** and **soil erosion**.
 5. Propose use of **larger regional ponds to control storm water runoff** in developed areas.
 6. Plan for a **well-defined “edge”** around the City/urban area that functions as a **green-belt**, which also clarifies the City’s identity.
 7. Remediate and **redevelop brownfield sites**
 8. **Provide incentives for infill development** (CRA assists with this)
 9. Utilize **Complete Streets** (sidewalks, bike lanes or wide paved shoulders), frequent and safe crossing opportunities; accessible pedestrian signals; desirable appearance including landscaping, shade and design; comfortable and accessible public transportation stops; median islands; narrower travel lanes; **roundabouts**; and special bus lanes.
 10. Promote **mixed-use development**, particularly near employment centers.
 11. Create a program to **acquire Agricultural teachers or a Master Gardener** to teach consumers how to grow edible food for their own consumption and benefit the economy.
 12. Reference: <http://www.planning.org/policy/guides/adopted/sustainability.htm>

Urban Service Boundaries

Create a Task Force to review and resolve issues between **City and County Urban Service Boundaries**.

1. The County and City should **establish goals and procedures to limit sprawl of rural development** without utilizing city water and sewer when readily available.
2. A **tax abatement** structure should be established to **reduce or prorate these costs and tap fees** for those who wish to annex but are unable to accommodate taxes and fees that may occur.
3. **Eliminate enclaves within City boundaries** which get City water and / or sewer but do not pay City taxes.
4. **Carefully delineate service areas** contiguous to the City to **facilitate planning and alert developers** of existing and proposed improvements.

Zoning

Zoning is to provide for harmonious land use, promote compatible neighbors, enhance overall community appearance and **produce a quality environment**.

1. Neighborhood Commercial Developments
 - a. In terms of sustainability, Neighborhood Commercial is desirable as it reduces vehicle trip length and promotes access via sidewalks.
2. Electronic signs are not sustainable due to the high cost and energy use.

Evaluation/ Recommendations:

1. **Incorporate Strategic Energy Plan into the Comprehensive Plan and implement it.**

TRANSPORTATION

Vision - Create a change in our lifestyle which promotes the automobile as an icon of success into one which adopts a lifestyle of sustainability in community and habitat design via use of “new urbanism” concepts and mass transportation.

It is important to note that **Putnam County’s Ride Solutions produces more than double the trips per capita** than the surrounding counties.

Saturation Transit Concept

1. Integrates deployment of **four primary forms of transit into a solution to the peak hour SOV (Single Occupancy Vehicles.)**
 - a. **Fixed Routes** try to determine optimum passenger access and usage and supply transportation in anticipation of that need.
 - i. Predictable response times and reasonably short routes.
 - ii. Busses can be fitted with bike racks.
 - iii. Buss routes/ stops can integrate into Rails to Trails to increase recreation opportunities.
 - b. **Demand Response (Dial a Ride or Taxi)**
 - i. Shorter response times and more direct routes
 - c. **Flexible Routes can be managed to respond to “call ins” or pre-scheduled needs.**
 - i. Slower than Demand Response with more nimble vehicles than fixed route.
 - d. **Car pool/ Van pool**
 - i. Commuter Single Occupancy Vehicles (SOV) = inefficiency
 - ii. **Car/ Van pooling may be the key to starting a successful flexible commuter transportation system.**
 - iii. **Utilizing appropriate software to coordinate** trips / destinations and times can facilitate access and increase flexibility to travelers.
 - iv. **On line applications** for Commuters.
 - v. **Incentives** could include wi-fi, coffee (Starbucks) and donuts as well as saving money from not having to buy gas.

Northeast Florida’s One Call/ One click Regional Transportation Resource Center

1. Includes Baker, Clay, Duval, Flagler, Nassau, **Putnam** and St. Johns Counties.
2. Includes a **population over 1.5 million people.**
3. Program designed initially to serve Veteran population. Florida is home to more than 1.6 million Veterans.
4. FDOT has provided a **Service Development Grant** for the **procurement of scheduling and dispatching software** to be shared by the CTC (Community Transportation Coordinator) transportation providers in the region through a secure internet connection.
5. This Veteran’s initiative will **allow us to expand access to regional scheduling via the internet and telephone.** It will allow veterans, their families, agencies that support them and the **general public to access the best transportation options for their individual trips.**

Car Pool/ Van Pool Opportunities

1. **Increase number of Park and Ride Stations** at strategic highway intersections.
 - a. One currently exists at 17/ 100 and 207 going south and west.
2. **Create Park and Ride Stations at:**
 - a. 17/100 Reid Street - Ride Solutions is the HUB of Public Transportation for Palatka and surrounding counties.
 - b. 17/100 going north to Orange Park / Jacksonville; plenty of available property.
 - c. 19/20 going south to Salt Springs and Ocala or west to Gainesville; vacant property on southwest side at intersection of 19 and 20.
 - d. 19/100 going west to Starke and Gainesville, available property.

Expand commuter rail access and usage - Amtrack/ CSX Trains and Commuter Rails Systems

1. **Palatka Train Depot** - Promote use by Commuters to all points, north, south, east and west.
2. **Contact Amtrack/ CSX** with demographics and Commuter demand data to establish Commuter routes.

Fleet Management Evaluation/ Recommendations:

1. **Create a centralized Fleet Management Department for the City.**

- a. Centralize and coordinate **procurement and maintenance** for vehicles.
- b. Centralized purchasing could **phase purchasing for budgeting purposes, improve competitive bidding, navigate choices toward selection of energy efficient vehicles and improve efficiency by using a focused purchasing policy.**
- c. Other fleets in the City/ County, include SJRWMD, School Board, County Building Department, Waste Pro, Ride Solutions, Georgia Pacific, and others.

Traffic Control:

1. **Synchronize traffic signals**, where practical to **allow traffic to flow** and reduce “stop and start” of vehicles.
2. **Utilize traffic circles or round-abouts** instead of “stop and go” technology to allow vehicles to flow through intersections.

Evaluation/ Recommendations:

1. **Support and adopt recommendations pertaining to promoting sustainability in community and habitat design via use of “new urbanism” concepts and mass transportation**
 - a. Establish number of Commuters leaving or coming into Palatka per day.
 - b. Identify principal Commuter lines or routes (how many and where?)
 - c. Identify number of Employers who need or would use the services such as Georgia Pacific, SJRWMD, School Board, County Building Department, Wall Mart, Waste Pro, Ride Solutions, Georgia Pacific, others.
 - d. Calculate per capita how much fuel is being sold in Palatka/ Putnam County and out of town.
2. Take advantage of Bryan Hammons/ **Visioning Study by the County Commission - Park & Ride.**

UTILITIES

Water Treatment

Vision - Create an environment where the public understands the importance of water conservation even though potable water appears to be plentiful.

1. Of all the water on earth, which is 97.14% of the total amount of surface water, only 2.59% is freshwater.
 - a. Of this 2.59% another percentage is trapped in ice caps and glaciers, which is about 2%.
 - b. The rest of the freshwater is either groundwater (0.592%), or readily accessible water in lakes, streams, rivers, etc. (0.014%)
 - c. One can conclude that less than 1% of the water supply on earth can be used as drinking water. Reference: <http://www.lenntech.com/water-quantity-faq.htm#ixzz1kODJoNfw>
2. Promote incentive programs by the **SJRWMD (Water Star)** or by existing Government/ Building Codes available (or might be created) to educate people and promote water conservation.
3. **The City has installed and is utilizing:**
 - a. **Automated flushing stations** being used to flush water mains periodically to reduce wasted water and personnel required to accomplish those tasks.
 - b. Automated water metering which saves time and expense and **allows for real time metering to detect water leaks** at consumers’ homes or businesses.
 - c. Eventually the **Consumer will be able to monitor** and control usage by viewing 15 minute segments on line

Water Star Program - St. Johns River Water Management District

1. Water Star Program includes **Residential, Commercial/ Industrial and Community Programs.**
 - a. Programs are **prescriptive** in design and application.
 - b. **City Government should include basic criteria in local ordinances.**
 - c. Compliance brings **discount on hook up fees.**
2. Work must be reviewed and certified to be in compliance with the program criteria.
 - a. Building Department Staff can be trained to be “Certifiers.”
 - b. The “details” can/ will be explained by SJRWMD Staff.

- c. All details are explained online in technical manual, with pictures.
- 3. **Irrigation typically is the biggest violator for compliance.**
 - a. SJRWMD training is free.
 - b. Water-wise data base = **right plant in the right place.**
 - c. **Most Irrigation Contractors are not licensed.**
 - d. **Adopt FBC Appendix "F"** voluntary criteria for irrigation systems to be mandatory.

Waste Treatment

- 1. **Increase public awareness** about what goes "down the drain" and how it affects treatment and costs including grease, chemicals, drugs, paints and solvents.
- 2. Recent improvements have been made to Palatka's Waste Treatment Plant improves processing of the effluent.
- 3. Need to be able to more accurately analyze waste stream.

Reclaimed Water

- 1. **The City has installed a reclaimed water system** which provides irrigation water to the Golf Course, State College, High School, Cemeteries, Water Management District and Airport.
 - a. Mains begin with a 16" round main and end with an 8 inch main at the Airport.
 - b. Laterals have not been installed because of expense but, expect to be.
- 2. Extend the system to other entities and /or residential consumers.
- 3. Reclaimed water is high in nutrients and chlorides so consumers must be educated to use less fertilizer and be aware of residual chloride effects.
- 4. Sometimes pressures for reclaimed water are higher than customary for domestic systems.
 - a. Pressure in the mains is about 90 psi, much higher than in the potable water system.
- 5. Establish a fee schedule for use of reclaimed water so when it becomes more readily available there will not be issues with differing rates.
- 6. The City has been successful in obtaining grants to create and extend the current system.
 - a. It is anticipated that additional grants can be obtained to extend the laterals and provide reclaimed water to residential, as well as commercial consumers.
- 7. Use of reclaimed water reduces the amount of potable water required for irrigation and reduces the amount of wastewater discharged into the river.
- 8. Because of reclaimed water the SJRWMD and the State College have been able to cap large wells formerly used for irrigation.
- 9. Georgia Pacific has been able to cap many flowing wells because of its conservation efforts.
- 10. Floridian Aquifer water levels are expected to raise locally because of GP's efforts and the use of reclaimed water.

Evaluation/ Recommendations:

- 1. Promote incentive programs by the **SJRWMD (Water Star)**
- 2. **Adopt Appendix "F"** of the Florida Building Code which contains criteria for irrigation design.
- 3. **Increase public awareness** about what goes "down the drain" and how it affects treatment and costs including grease, chemicals, drugs, paints and solvents.
- 4. **Extend the reclaimed water system** to other entities and/ or residential consumers.
- 5. **Establish a fee schedule** for use of reclaimed water so when it becomes more readily available there will not be issues with differing rates.
- 6. Use of reclaimed water reduces potable water required for irrigation and reduces wastewater discharged into the river.
- 7. **Continue to improve to quality of reclaimed water to the point where it becomes potable.**

Palatka Natural Gas Authority

Actively promotes use of natural gas and NG products. There are inherent energy efficiency and environmentally friendly characteristic of NG.

1. Promote programs which are available and create additional programs to educate on use of NG.
2. Expand and publicize incentive programs by the NG industry or by Government/ Building Codes.
 - a. USDA low interest loans.
 - b. Publicize **rebates for replacements of existing appliances**
 - c. Promote installation of natural gas appliances in lieu of electric.
3. Promote use of New products.
 - a. Tankless Water heaters
 - b. Split system Gas HVAC Equipment
 - c. Compressed Natural Gas (CNG) vehicles.
 - d. Hydro Heat Air Handling Units.

Evaluation/ Recommendations:

1. Identify households or businesses currently using NG and **project target market for future.**
2. **Review map of existing NG distribution areas** and areas of projected growth,
 - a. **Involve Builders and Planners** in creating projections for growth.
3. **Create Baseline information including:**
 - a. **Top users** of Natural Gas
 - b. **Involve Developers and Planners** to determine areas where Natural Gas main lines and distribution piping should be installed.

PARKS AND RECREATION

Vision - Conserve our natural resources, involve the public in outdoor recreation activities and increase the public's knowledge and awareness of our environment.

1. Palatka and Putnam County are the HUB of Rails to Trails and Blue-ways and Trails in Florida.
2. **Endorse landscaping and irrigation design strategically planned** to benefit the user without encumbering substantial costs for maintenance and resources.
3. Support utilizing shade from trees rather than artificial screens or construction as natural and cost efficient.
4. Plan larger parks to take advantage of their size to accommodate multiple activities or larger groups of people.
 - a. Lighting should only be used at larger parks to conserve energy and reduce costs of maintenance.
 - b. Mass Transportation such as Ride Solutions can incorporate stops at local and regional parks to promote their use and save costs for the family automobile.
5. Create smaller neighborhood parks to be used for local families and children for activities accessible via walking from school or home.
6. **Develop a map to show locations of Rails to Trails, local and regional parks and possible sidewalk connectors.**
 - a. **Interconnect bike trails to Schools.**
 - b. Trails to have destinations with educational kiosks to inform children of the natural resources, geology and the environment.
 - c. Plant Fruit trees along bike trails.
7. Propose use of solar street lights.
8. Utilize Community Gardens.
9. Create new sidewalks at South Palm Avenue because with trees and houses, pedestrians are forced to walk in the street.
10. Utilize the FDOT Grant for City Trails from the "Y" at 100/17 to across the bridge over St. Johns.
11. Propose a YMCA be created for the Palatka area
 - a. One with indoor facilities for basketball, a swimming pool and indoor games.

Evaluation/ Recommendations:

1. **Capitalize on the fact that Palatka and Putnam County are the “HUB” of Rails to Trails and Blue-ways and Trails in Florida.**
2. Endorse strategically planned landscaping and appropriate irrigation design.
3. Develop a map to show locations of Rails to Trails, local and regional parks with sidewalk connectors.
4. Develop and utilize Community Gardens

BUILDING CONSTRUCTION - Sustainable Construction Industry

Vision - Encourage the local Construction Industry and Stakeholders to embrace the concept of Sustainable Construction in new projects, existing renovations and additions, and maintenance of existing systems and buildings through learning, education, promoting, implementation, evaluation, and adjustments.

A Partnership Leadership within the local construction community should be **partnership between architects, engineers, drafts persons, contractors, trades persons, and the building departments** with a goal to acquire new knowledge, **change behaviors**, enhance skills, formulate values or preferences, and to improve our built and natural environment. The Partnership must be committed to **learning new technologies, validating old technologies, and deciding the best construction practices to support a Vision of Sustainable Construction.** A primary goal should be to include all Stakeholders; we need their buy in...

Education - The Partnership spearheads activities in sharing Sustainable Construction knowledge with stakeholders, to encourage learning to make smart “green” decisions.

1. **Building Department Educational Opportunities -**
 - a. Provide information to designers, owners and contractors on sustainable opportunities through one-on-one meetings and presentations.
 - b. Plan Reviewers assist potential permit holders in pre-construction options to improve the performance of their proposed buildings or structures.
 - c. Provide a large screen TV in lobby to show Public Service Announcements (PSA), sustainable concepts and techniques, and mini-classes for public outreach and awareness.
 - d. Provide handouts and brochures in lobby on sustainable topics and natural resources.
 - e. Develop and provide presentations geared towards educating kids in sustainable practices at home and school.
 - f. Provide training and educational opportunities to Building Department staff in Sustainable construction, preserving natural resources, recycling, and interview skills.
 - g. Promote REDUCE - REUSE - RECYCLE.
2. **Putnam County Builders and Trade Association**
 - a. The Building Department can partner with the PCBTA in providing monthly lunch meetings dedicated to a 30 minute presentation on Sustainability in the Built Environment.
 - b. Offer one-on-one “Sharing Knowledge” sessions between contractor and inspectors to improve overall knowledge of construction.
3. **Resource Library**
 - a. Maintain hard copy of information related to sustainability, Green Building, LEED program, best construction practices, etc., available to public.
 - b. Provide Sustainable information on Building Department Website.
 - c. Provide public computers with Internet access for research and learning.

Promoting

1. Promotion
 - a. **Recognize Energy Star and Water Star projects and Contractors** on Building Department Website, Newsletter, and display in lobby.
 - b. The Construction Industry should **promote use of products and construction practices,**

- c. **Permits can be discounted when material is verified it will be recycled or reused when demolishing buildings and structures, or portions thereof.**
- d. **Offer Internet based submittal process for permit application and initial “Green” review.** Respond through email and internet options (saving resources.)
- e. **Contractors can promote Sustainable Construction by becoming Energy Star certified and participating in the Water Star Program.**

Implementation

1. **Designers/ Contractors**
 - a. **Encourage Owners to build green** and spend their construction dollars wisely during the design and construction process.
 - b. Encourage landscaping with indigenous, drought tolerant plants.
 - c. Encourage conservation techniques and new easy technology (rain barrels, cisterns, etc.)
2. **Audits / Inspections**
 - a. Provide basic building inspections on existing building to identify opportunities to improve efficiency of building and systems. (Building Department & PCBTA)
 - b. **Require Inspectors to become certified in Water Star Program offered by SJRWMD.**
3. **Contractor Licensing / Permits**
 - a. **Encourage municipalities to adopt local Contractor licensing for lawn irrigation, property maintenance (handyman), and require annual education on conservation and Green Technology.**
 - b. **Encourage county and municipalities to require permits for improvements that affect the sustainable and natural environment.**
 - c. **Encourage county and municipalities to adopt compliance requirements for owners & contractors failing to obtain permits and inspections.**
4. **Incentives**
 - a. Fast Track permitting for Commercial projects designed by a licensed Architect.
 - b. Permit discounts for contractors using Internet permit services (CAP).
 - c. Permit discounts for new construction designed to Energy Star and Water Start standards.
 - d. Awards or recognition of Stakeholders.

Evaluation/ Recommendation:

1. Evaluating Success
 - a. # of Stakeholders committed to program / effort.
 - b. # of members in the PCBTA.
 - c. # of Green Permits issued
 - i. Recycled demolitions
 - ii. LEED Buildings
 - iii. Energy Star Building
 - iv. Water Star Buildings
 - v. Lawn Irrigation
 - vi. Upgrade Permits – (light colored roofs, new insulated windows, HVAC, etc.)
 - d. # of educational activities – seminars, classes, mentoring, etc.
 - e. # of brochures handed out.
 - f. # of BEERS, LEED, Energy Star, Water Star, etc, Certifiers in the local Construction Community.
 - g. # of “Green” Ordinances adopted by local governments.
 - i. Lawn Irrigation
 - ii. Local Contractor Licenses
 - iii. Local permitting & inspection requirements
 - iv. Building Green Codes

- h. Sales info from local suppliers on # of Green Products sold.
- i. # of participants in Utility Promotions or Rebates on Green Upgrades, etc.
- j. # of projects in SHIP, WAP, and CDBG programs improving home efficiency.
- k. # of new project that replace old homes or mobile homes (existing home demolished)
- l. # of Septic Permits issued to upgrade or repair septic systems – improving environmental conditions.
- m. # of Internet Permits issued – saving gas, time and paper.

Adjustments

The local Construction Industry and Stakeholders should **review the progress, success, and areas that need improvement in the Sustainable Construction program and make the necessary adjustments** to ensure a successful program, including the Vision and the Partnership (leadership).

RECYCLING.

Vision - REDUCE - REUSE - RECYCLE. Promote recycling as essential to preserve natural resources and reduce impact to our landfills.

- 1. **Introduce programs to children in elementary schools** to promote recycling, reusing and **repairing goods and products** rather than disposal.
- 2. Promote “composting” by educating the public and creating awareness on the benefits of compost.
- 3. Provide **Recycling bins** in public places and at Festivals for consumers use to facilitate recycling.
- 4. Adopt policies and procedures to have **paperless** Commission Meetings and Hearings.
- 5. Utilize **Construction Demolition and Debris** (concrete, yard trash, soil, various metals) as recycled materials to be reused instead of new raw materials.
- 6. Expand number of products such as **glass** to be included in recycling.

Evaluation/ Recommendation:

- 1. **Promote recycling to preserve natural resources and reduce impact to landfills.**
- 2. **Introduce programs to children in elementary schools to promote recycling, reusing and repairing goods rather than disposal.**
- 3. **Define quantities of recycled goods over recent years and chart progress of quantity and variety of goods being recycled.**

ENERGY MANAGEMENT

Vision - Diversification of energy products and sources as well as supply and distribution routes will ensure adequacy and dependability of fuel supply to most consumers over the next several generations.

Electrical Energy:

- 1. Power companies operate on the principle of Supply and Demand.
 - a. Commercially, they want to sell electricity but, peak demands can be a problem.
 - b. Energy savings is based on demand - commercial loads.
 - c. Programs or systems which can offset peak demands can help delay the need to construct new power plants.
 - d. Commercial users can take advantage of off peak times to manufacture or operate to help offset demand during peak times by using incentives of lower energy cost.
- 2. Using a “carbon footprint” to measure success might not be the most understandable or tangible way to grasp the principles of energy efficiency and conservation.
 - a. Energy Audits have already been performed on several City Buildings.
 - i. Determine total number of City Buildings and plan to audit all remaining City Buildings.
 - ii. Audit Buildings to evaluate building envelope, heating ventilating and cooling system, insulation, water heating, efficiency of appliances and lighting.

3. Identify Private Consumers who are significant energy users. Ask them to share their energy conservation measures and their participation in energy audits. Ask them to voluntarily provide information on what they are doing and how much energy they are saving or plan to save over time.
 - a. These high energy users might be encouraged to share their success stories in a public forum so others could learn how to reduce their costs.
4. Promote use of FPL and Clay Electric who offer free energy audits to Residential and Commercial Consumers. Consumers can sign up on their website.
 - a. Online energy surveys on their website www.fpl.com and www.clayelectric.com which the consumer can do to improve energy efficiency and reduce their energy bill.
5. Utilize creative technology and / or products.
 - a. LED lighting - Use commercially for exit lights
 - b. HID/ mercury vapor and fluorescent lighting more efficient than incandescent.
 - c. Light prisms.
 - d. Fully electric automobiles.
 - e. Solar water heating
 - f. Occupancy (motion) sensors for seldom used spaces.
 - g. Incorporate Net Metering
6. Promote Smart Grid - Already in South Florida and West Palm Beach. Rest of State by 2013.
 - a. Sophisticated metering apparatus which allows monitoring of electrical usage by consumers in 15 minute time increments.
 - b. Can identify locations of power outages with higher reliability.
 - c. Real time evaluation of power usage.
 - d. Allows remote meter reading.
 - e. Can improve management and usage of electricity thereby reducing peak demands
7. Promote creative ways to store energy during times when energy is being produced at times of low demand to be used later during peak demand times is important.

Promote various types of alternate energy.

- a. Windmills to generate electrical energy.
- b. Photo-voltaics.
- c. Water current to generate electrical energy.
- d. Geothermal.
- e. Biomass.

Remaining Steps are

7. Identify Funding
8. **Finalize and Adopt the Plan**
9. Execute the Plan
10. Measure/ Evaluate/ Update the Plan
11. Celebrate our Work!

Attain Sustainability by meeting the needs of the present generation without compromising the ability of future generations to meet their needs.

FACTS ABOUT THE CARBON FOOTPRINT

The **carbon footprint** offers a way to calculate your contribution to the carbon dioxide emissions that affect our climate. It measures the total amount of carbon production created by your energy consumption. Knowing your carbon footprint can show areas where you can **decrease your energy consumption** and, in turn, **reduce your production of carbon emissions**.

Significance

An increase in greenhouse gases has shown the potential to raise the average surface temperature, which could change weather patterns and increase storm severity. The U.S. Environmental Protection Agency estimates that **atmospheric concentrations of carbon dioxide**, the main emission measured by the carbon footprint, have **increased by 36 percent since 1750**. Scientists conclude the majority of this increase comes from **human actions**. The EPA and nonprofit environmental agencies developed carbon footprint calculators to measure individual carbon contributions that affect climate change.

History

The **carbon footprint concept** took hold at a 1979 U.S. Senate energy committee discussion about the "environmental footprint" of government operations in Yosemite National Park. Tom Rawls, chief environmental officer for Green Mountain, is largely credited with the first quoted use of "carbon footprint" in a Seattle Times article, "Carbon Count: Forests Enlisted in Global Warming War," published November 18, 2000. From there, the term gained wider use through a 2005 British Petroleum advertising campaign.

Contributing Factors

While a host of **greenhouse gases cause climate change**, **scientists identify carbon dioxide as the largest source**. The U.S. Energy Information Administration found that carbon dioxide emissions from burning fossil fuels accounted for 82 percent of the greenhouse gas released in 2006. **Power plants, factories and transportation generate the majority of fossil fuel usage**. Personally, the way you travel, the electricity you use, the products you buy and the food you eat all contribute to your carbon emissions.

Calculating the Carbon Footprint

The EPA, Nature Conservancy and other organizations offer online carbon footprint calculators. The Cool Climate Network at the University of California, Berkley, estimates **the average U.S. household carbon footprint at 49 metric tons of carbon dioxide**. While each calculator uses different data, many of them ask for information about your vehicles, public transportation usage, home heating and cooling, household energy use, water consumption, dietary choices and waste management.

Reducing the Carbon Footprint

The main way to reduce your carbon footprint is to decrease your energy consumption. For travel, use public transportation or low-emission vehicles. Insulate your home, use energy-efficient products and reuse or recycle as much as possible. You can also compensate for the effects of your carbon footprint through carbon offsetting. The Nature Conservancy and other organizations provide carbon offset programs that invest donations toward protecting land and planting trees, both proven ways to reduce greenhouse gases.

References

- EPA: Climate Change
- New York Times: Footprint
- U.S. EIA: Greenhouse Gases, Climate Change and Energy
- Nature Conservancy: Carbon Footprint Calculator
- Cool Climate Network: Calculate Your Complete Carbon Footprint

Read more: <http://www.livestrong.com/article/156559-facts-about-the-carbon-footprint/#ixzz1gQWv83V7>

EFFECTS OF CARBON FOOTPRINT

A carbon footprint is a measure of carbon dioxide emissions associated with an entity's activities. According to Encyclopedia Britannica, a carbon footprint includes direct emissions, such as from driving a car, and whatever emissions are required to consume any goods and services. Often, a carbon footprint includes the measure of other greenhouse gas emissions as well. **The United States, with only 4 percent of the world's population, contributes 25 percent of the world's greenhouse gases.** The average American produces about 20 tons of carbon dioxide each year. A large carbon footprint has detrimental effects on the environment.

Greenhouse Gas Emissions

Electricity generation and transportation-related activities account for well over half of the 14 percent increase in greenhouse gas emissions in the United States from 1990 to 2008. **The Federal Transit Administration estimates that switching to public transportation instead of driving would allow the average American to reduce his or her carbon footprint by 10 percent.** Americans could also reduce their collective carbon footprint by changing their incandescent bulbs to compact fluorescent lights, preventing the emission of 9 billion pounds of greenhouse gases.

Climate Change

Climate change is the ultimate effect of large carbon footprints. Greenhouse gases, whether natural or human-produced, contribute to the warming of the planet. **From 1990 to 2005, carbon dioxide emissions increased by 31 percent. By 2008, the emissions had contributed to a 35 percent increase in radiative warming, or a shift in Earth's energy balance toward warming, over 1990 levels. The decade from 2000 to 2009 was the warmest decade on record worldwide,** according to the U.S. Environmental Protection Agency's Climate Change Indicators Report.

Depletion of Resources

Large carbon footprints deplete resources on large and small scales, from a country's deforestation activities to one's home increased use of air conditioning. The more those with large carbon footprints use resources, the more greenhouse gases increase and spur further climate change. The Environmental Protection Agency suggests that **consideration of different energy supplies and conservation of current ones will be needed to balance energy demand.** Reducing carbon dioxide emissions as much as possible and off-setting the remaining emissions by planting trees, for example, or supporting alternative energy efforts, will help to reduce the negative effects of carbon footprints.

WHAT IS YOUR CARBON FOOTPRINT

Like leaving footprints in the sand, you also leave a carbon footprint. Your carbon footprint adds to climate change and has a negative impact on the planet. Understanding what contributes to your carbon footprint is the first step in reducing it. **Reducing your carbon footprint will also save you money.**

Definition

Burning fossil fuels creates carbon dioxide or CO². Carbon dioxide is one of the greenhouse gases that many scientists believe contribute to global warming. Very simply, your carbon footprint is a measurement of the amount of CO² you generate. Expressed in pounds, the higher your carbon footprint is, the more negative the impact your lifestyle has on the planet.

Energy Waste

You produce carbon dioxide daily. In fact, the act of exhaling creates CO². Whenever you use energy that comes from burning fossil fuels, you generate CO² and increase your carbon footprint. Carbon dioxide is the equivalent of energy waste.

Electricity

According to the Environmental Protection Agency, or EPA, **the biggest contributor to your carbon footprint is the electricity you use both at home and at work.** Simply using electricity does not produce carbon dioxide or other greenhouse gases, but the power plants that generate your electricity do. Coal-fueled power plants generate the greatest amount of CO².

Home Heating

Heating your home during cold weather months is the second biggest source of CO² after electricity use, and it increases your carbon footprint. Most furnaces or boilers use fossil fuels or electricity to produce heat. The amount of CO² emitted from your furnace depends on the type of fuel you use and your thermostat setting. You increase your carbon footprint when you operate an air conditioner to stay cool during summer.

Additional Impacts

Driving increases your carbon footprint. Your gasoline-powered car produces CO² as a by-product. While using public transportation helps reduce your carbon footprint, buses, trains and planes also produce large amounts of CO².

A lot of people don't realize that **their trash also contributes to CO² emissions.** The EPA estimates that for every pound of trash you generate, almost one pound of greenhouse gases are emitted from the landfill. When trash decomposes, it produces CO² and methane, another type of greenhouse gas that's much more potent than carbon dioxide, according to the EPA. The EPA also estimates that over 1,000 pounds of greenhouse gases are produced annually for every person in the country.

Carbon Footprint Calculators

You can use online calculators to determine your carbon footprint. You must answer a series of questions about location, home type, household size, electrical consumption, driving habits and air travel frequency. The result will be the size of your carbon footprint, shown as pounds of carbon dioxide.

Reducing Your Carbon Footprint

Reducing electricity consumption is the best way to reduce your carbon footprint. Turn off your computer, television and lights when not in use. Unplug chargers when they're not in use. Switch to fluorescent light bulbs. Adjust your thermostat to reduce your energy use. Properly inflate auto tires to improve your car's efficiency. Reduce the amount of trash you generate by recycling whenever possible. **All of these actions will also save you money in addition to reducing your carbon footprint.**

WHAT IS CARBON FOOTPRINT REDUCTION

"Carbon footprint reduction" refers to attempts by individuals and organizations to reduce their contribution to global warming. According to Mike Berners-Lee, author of "How Bad Are Bananas? The Carbon Footprint of Everything," the expression uses **"carbon" as a shorthand for all activities that promote climate change, and "footprint" as a metaphor for each person's mark on the world.**

Gases

"Greenhouse gases" are pollutants that trap the sun's heat in the lower atmosphere, raising the temperature of the Earth. **Greenhouse gases include methane, nitrous oxide and fluorocarbons, but the most significant is carbon dioxide, or CO².** Carbon dioxide gets into the atmosphere both naturally--it's what you breathe out every time you exhale--and artificially, mostly from the burning of fossil fuels such as gasoline, oil and coal by cars, factories and power plants.

Footprint

The idea behind the carbon footprint is many of your daily activities are directly or indirectly responsible for releasing greenhouse gases into the atmosphere. Every mile you drive your car or ride in an airplane generates a certain amount of CO². The electricity you need to run your home is produced by a power plant, which gives off CO². The products you buy take energy to manufacture, which means more CO². Plus, some of your activities are responsible for producing other gases. **For simplicity's sake, common carbon-footprint calculations convert those gases to their equivalent in CO².** For example, 1 kg of methane in the atmosphere has the same warming effect as 23 kg of CO², and 1 kg of nitrous oxide equals 296 kg of CO². Add it all up, and you get your "carbon footprint."

Reduction

Considering there are thousands of things that go into creating your carbon footprint, there are thousands of things you can do to reduce it. For example, look at your commute to work. If you're driving by yourself, you can immediately reduce your carbon footprint by riding with a co-worker, because now it takes two people to produce roughly the same amount of CO² as one person driving alone. Ride public transportation--or, better yet, walk--and you reduce your footprint further. Even if you must drive alone, if you can figure out a way to commute at a time other than rush hour, you'll spend less time idling in traffic, use less gas--and produce less CO².

Neutrality

The goal of carbon footprint reduction is to move toward "carbon neutrality"--that is, being responsible for no net increase in greenhouse gas emissions.

Considerations

Berners-Lee cautions it is probably impossible to know the true extent of your carbon footprint, because it's the result of so many factors. Even so, he says, that doesn't mean you can't still make a dent in it. Avoid the temptation, he says, to "give up and measure something easier." He gives a hypothetical example of an airport boasting about how energy-efficient it has made its buildings--while ignoring all the jets spewing carbon dioxide by the ton.

DESCRIPTION OF A CARBON FOOTPRINT

Defining and Delimiting a Carbon Footprint

While strictly "carbon footprint" refers to carbon dioxide production alone, many organizations like Britain's Carbon Trust use the term to include all greenhouse gases.

Carbon footprints can be delimited by person, neighborhood or city, nation, activity, product or can even be considered globally. Carbon footprints can also be time-delimited by, for example, hours or months.

Personal Carbon Footprint

Calculating an individual's carbon footprint would require looking at all of their activities over the course of, for example, a day or week, and calculating those activities' respective CO² production. Driving, cooking, exercising and eating all produce CO² directly or indirectly.

Product and Industry Footprints

Because all manufacturing requires energy, all products have their own carbon footprint even if the products themselves aren't designed to consume hydrocarbon fuels or otherwise emit CO².

To calculate the carbon footprint of a metal table, for example, one needs to determine the source and amount of energy expended in mining the metal, transporting it to a mill, refining it from ore, building it at the factory and sending it to the store, while including the energy expenditures of all intermediate administrative and transportation steps.

A hybrid car, for example, may have a lower carbon footprint while in operation, but may bear a large carbon footprint from its manufacturing process, which requires the energy-intensive mining and purification of rare earth metals like neodymium and lanthanum.

Considering Alternatives

To calculate an accurate carbon footprint, you also need to consider alternative scenarios. For example, if you don't use fertilizer made and shipped from a factory, how much more land would you need to cultivate to get the same number of healthy crops? Will the costs and carbon footprint from manufacturing a solar water heater be larger than the CO² emissions that the solar panels may offset over time? Does a larger carbon footprint also bring positive effects that would be missing if CO² emissions were forced to be lower? These questions illustrate the intricacies of calculating an accurate carbon footprint, and the complexity of balancing CO² emissions against other goods.

Useful Carbon Footprint Numbers

There are several equations relating fuel consumption to CO² emissions that form the basis of many carbon footprint calculations. The EPA, Department of Energy and Oak Ridge National Laboratory provide the following CO² emission numbers:

1 gallon of gasoline = 19.4 lbs. of CO²

1 gallon of diesel fuel = 22.2 lbs. of CO²

1 lb. of coal (average carbon content) = 2.86 lbs. of CO²

1,000 standard cubic feet of natural gas = 115 lbs. of CO²

While coal and natural gas are common fuels for power generation, electricity produced by uranium in a nuclear power plant generates no CO².

Are Carbon Footprints a Meaningful Metric?

Usefulness of the "carbon footprint" concept remains uncertain and even controversial. Part of the reason is that such calculations often neglect to include the carbon footprint of alternative courses of action--for example, the amount of CO² that would be emitted by burning wood to heat water instead of using gas-generated electricity.

The ultimate effect of CO² on atmospheric physics and climate also remains poorly understood and hotly debated. While data collection has increased substantially over the last decade, most discussions of CO²'s effects on climate are based on computer models and software programs, instead of historical patterns or observable data

NUMEROUS WAYS TO REDUCE YOUR CARBON FOOTPRINT

Many folks can't afford solar panels or a new hybrid car - and newly produced items like those can actually add to a personal carbon footprint, because of the energy and resources needed to make them.

But there are simple, constructive ways to reduce your carbon shoe size without the big price tag. Lisa Wise, executive director of the Center for a New American Dream, says everyday choices and actions can make a huge difference:

1. Buy organic and local.
When possible, buy organic or "fair trade." There's a better chance the food was grown in an eco-friendly way, and if it's locally grown, it didn't have to travel that far. This also goes for those double lattes - coffee often has a large carbon footprint because of the distance those beans had to travel to get here, and how they were produced. Also, try eating at restaurants that serve locally produced or seasonal foods.
2. Pay attention to packaging.
When out shopping, try to go to stores or co-ops that keep packaging to a minimum. For example, you may chose to buy the loose tomatoes rather than boxed or plastic-wrapped tomatoes. Also, take reusable bags to the grocery store. When it comes to resources, plastic is better than paper - but a reusable cloth tote-style bag is better still.
3. Ditch bottled water.
Bottled water has a huge carbon footprint - it's bottled at one location in small plastic bottles and shipped all over. Try buying a reusable water bottle or canteen for your water. Also, a lot of restaurants have made the move from offering fancy bottled water, usually imported from an exotic source, to using in-house filtration systems that make tap water a good choice. Many plastic water bottles are recycled, but most are not, making the footprint even bigger.
4. Energy-proof your home.
 - a. Make sure all of your windows close properly and that the attic in your home is properly insulated.
 - b. Keep your heating and cooling systems properly maintained, and switch to reusable filters when possible.
 - c. Get a programmable thermostat. Set it to modulate temperatures to be comfortable when you are there and offset to save energy when you are not.
 - d. Switching from incandescent to compact florescent light bulbs. Compact florescent light bulbs use about 75 percent less energy than our normal light bulbs and last much longer.
 - e. Turn the water heater down a few notches. Water requires a tremendous amount of energy to heat.
 - f. Install low-flow showerheads that will do the work of saving you water, energy and money.
 - g. Air dry clothes after you wash them, using a clothesline or drying rack.
 - h. Fully fill your washing machine and dishwasher each time you use them.
 - i. Set the thermostat a few degrees lower in winter (and a few degrees higher in summer if you have an air conditioner in your home).
5. Go native.
Use native plant species to landscape around your home or business. The plants will probably grow better in a familiar environment, and the plants may also get shipped a shorter distance to get to your local nursery. Also, use organic soil when planting - it's made using more eco-friendly methods, and uses less resources. And remember, green plants are a good way to offset carbon. So plant something, anything - it helps.
6. Window shop.
If you have the urge to spend, try window shopping or browsing first. This helps ensure you are only buying things you really need, or really want, and you're not just impulse buying. Remember, every item in a store, no matter how small, has a footprint - so if we are conscious consumers, we can reduce our own footprint and the overall footprint of our nation.
7. Switch water heaters to vacation mode.

Most water heaters have a "vacation" setting for when you are away from home for an extended period of time. Switching to that "away" mode still keeps the water warm, but will not use the energy it takes to keep a tank full of piping-hot water. Enjoy your vacation even more, knowing that you're saving money and reducing your footprint.

8. Unplug it!
Unplug appliances that you don't use frequently. Most electronics have a standby mode that siphons energy even when not in use. Cell phone chargers, laptops, televisions, stereos - there's a whole list of items that should be unplugged when not in use. Try using a power strip for groups of electronic items. One flick of the switch and it's all off.
9. Keep your car.
 - a. With gas prices seemingly always on the rise, it's tempting to buy a hybrid or electric vehicle. But if your older-model car is in good condition, you're better off keeping it in good running condition. Even hybrids create a big footprint when they're built, so consider driving that old clunker for a little while longer.
 - b. Try eco-friendly modes of transport, like buses, trains, a bicycle, telecommuting or even walking.
 - c. Carpool or ride a bike to work. The less you drive your car, the better.
 - d. In the Car: Drive consistently. Fast stops and starts eat up fuel, driving 55 instead of 75 mph saves you between 20-30 percent in fuel efficiency.
10. Use cold water.
 - a. In the washer. Using cold water to launder things that don't need to be cleaned in hot or warm water.
 - b. Use cold water for your wash and rinse cycles. Hot water accounts for 90 percent of the energy used by washers, and cold water is usually just as effective.
 - c. Most major detergent makers sell detergents designed to have the same cleaning power as with regular soap. Try washing mixed loads in cold water, too.
11. Have the family over.
Family gatherings are a good way to spend some quality time with loved ones, with very little carbon impact. Cooking and entertaining for larger groups is more efficient and, per person, a lot less expensive. And who can put a price on these "carbon freebies"?
12. Make time for errands.
A lot of us try to run errands in-between work and other commitments. Try bundling errands together to reduce how far you need to travel. Going back-and-forth to the same part of town on different days to run errands uses more gas than if you planned and did everything in the same area all at once. And if you really want to make it a "carbon freebie," try carpooling and running errands with a buddy.
13. The Three Rs: Reduce, Reuse, Recycle.
 - a. Try buying less, and reusing and fixing things when you can instead of buying new.
 - b. For a lot of people, recycling is as easy as rolling the trash bin to the curb. Just remember to do it at work, too.
 - c. When you throw things away instead of reusing them or allowing the materials to be recycled, more resources and energy will be needed to produce replacement products.
 - d. Thrift stores are great places to give quality items another go-round. Whether buying or donating, the adage that one man's junk is another's treasure has never been truer. And items that get a second life keep the landfills free of trash.
 - e. Be sure that items you want to trash can't be recycled. You may be surprised by just how many things people are putting to new use these days.
14. Composting helps reduce carbon emissions in several ways. First, it keeps food, and the methane it will produce, out of the landfill. Second, organic compost reduces the need for petro-chemical fertilizers, which use fossil fuels in their refinement and distribution. You can compost a number of ways, from a pile in your backyard to a tub of worms in your basement. Either way, the carbon savings will add up quickly.