

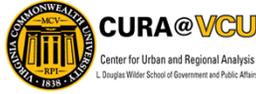
MAKERS & ARTISANS ON MAIN STREET

Virginia Main Street Intersections

John Accordino, PhD, FAICD & Michelle Portier, MURP

The Center for Urban & Regional Analysis

July 12, 2016



VCU

L. Douglas Wilder School of Government and Public Affairs

CURA @ VCU

VIRGINIA COMMONWEALTH UNIVERSITY

Virginia Main Street

Main Street Program Success

- Successful as a downtown revitalization program.
 - Since 1985, 3,365 new businesses created
 - 11,908 new jobs have been created
 - \$1.2 billion invested, 71% by the private sector



<http://www.premierpropertiesvirginia.com/>

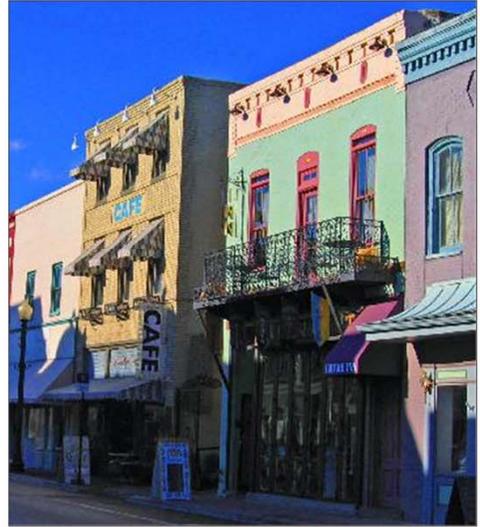


<https://celloscorner.com/tag/staunton/>

Virginia Main Street

Main Street Program Success

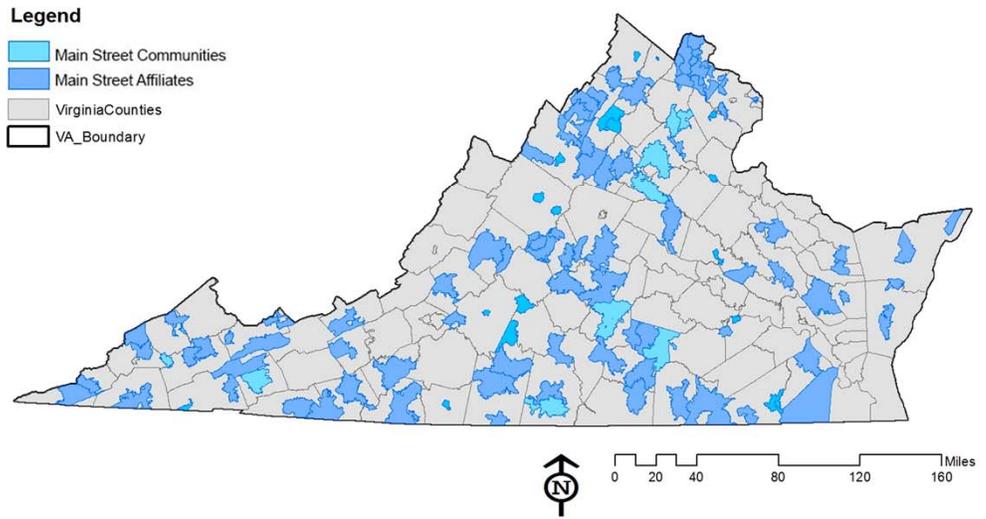
- Focus is on:
 - Retail
 - Consumer Services
 - Accommodations & Food Services
 - Recreation



https://www.tripadvisor.com/LocationPhotos-g57653-Culpeper_Virginia.html

Virginia Main Street

Main Street Communities & Affiliates in Virginia



Virginia Main Street

New Opportunities:
Makers & Artisans



<http://downtownharrisonburg.org/events/valley-fourth/>

Why Makers & Artisans?

A Desire to Make Something:

- Recapturing lost crafts
- Using new technology at small scale
- Wide variety of goods & products
- Community & place are part of the business model

Why Makers & Artisans?

Makers & artisans enhance Main Streets

- Locally-produced goods
- Locally-owned businesses
- Venue for patrons to see artisans at work
- Venues for artisans & makers to create
- Local economic development



<http://makerfaire.com/bay-area-2015/schedule/>



Photo provided by Sincerely Amy Designs



<https://en.wikipedia.org/wiki/Artisan>

Why Makers & Artisans?

Makers & artisans can enhance communities



<http://www.yelp.com/biz/strawberry-street-market-richmond>



<http://strawberrystreetsales.com/about-us/>



<http://www.joesinn.com/>

- Important to local economy & cities they work in
- Make neighborhoods distinct, vibrant places
- Improve quality of life through quality of goods & services
- Add a “cool factor” & make their cities a unique destination

Today's Presentation:

- VCU Research on artisan economy & artisan needs
- Makers & their needs
- How Main Streets can utilize this knowledge to help them thrive & enhance Main Street

CURA @ VCU

CURA @ VCU & VCU Master of Urban & Regional Planning program (MURP) studying:

- Potential for artisans & makers to become a permanent feature of our economic landscape
- What they need to thrive
- How historic downtowns can be a home for them, helping them so they can enhance downtowns

Coming Year:

- Nationwide look at Best Practices for Main Streets
- How to incorporate makers & artisans into Main Streets
- Feasibility Studies: Can your Main Street or nearby area host makers & artisans?

Makers

What is making?

- Industrial crafting
- Movement to create in the wake of disappearing Shop & Home Economics classes
- Creates a niche environment for localities
- Currently hobby-based, but as the movement becomes mainstream, that may change

Makers

What is making?

“Many agree that once this country loses its ability to make & build things, we will have lost what made America great.”

– Vocadoemy Makerspace Founder's Vision

Edison, Franklin, the Wright Brothers, Harley Davidson, Apple, HP & many others started in small workshops with basic tools.

Makers

What do makers make?

- Tech-based items
- Cross-over with fashion
- Square POS system

Square POS reader



<http://appleinsider.com/articles/14/11/21/square-plans-to-begin-accepting-apple-pay-with-new-nfc-compatible-hardware-in-2015>



<https://www.engadget.com/2015/12/10/adidas-futurecraft-3d-closer-look/>



<http://3dprintingindustry.com/news/3d-hubs-student-credit-36007/>



<http://www.lyteshot.com/3d-printing-hits-big-across-u-s-universities-virginia-tech-dreams-labs/>

Makers

What do makers make?



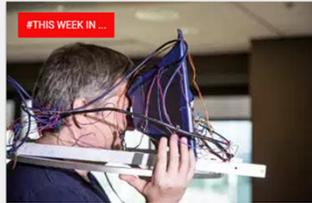
Create a Raspberry Pi Photo Booth for Your Next Party



Make a Wi-Fi Enabled Light Switch Turner Onner



"Vance Maker" and the Joys of Making with Kids



This Week in Making: VR Prototypes, Spy Surveillance, and Leaked FAA Regulations



Last Chance to Share What You Make at the Largest Maker Gathering in Europe



Making a Convincing Ant Man Helmet Out of Found Materials

<http://makezine.com/projects/>

Makers

What do makers make?



Weekend Watch: Tiny Home Living with the Von Thompsons



DIRESTA: Key Hook



Use Your Smartphone as Your Car Key with an NFC Lock



This Robot Monitors Avalanche Conditions So You Don't Have To



Make a Teeny Tiny FM Spy Transmitter



Making a Train Yard for Ticket to Ride

<http://makezine.com/projects/>

Makers

Who are the makers?

- Entrepreneurs with a great idea but little capital to build prototype
- Adults who want to collaborate & create
- Students who lack access to wood & machine shops
- Kids who participate in kid-centric maker workshops at libraries & community centers

- Maker Movement Creates DIY Revolution

Makers

Ages:

- Kids: Lego robots
- Teens: Digital music, movies, & games with computers & mixers
- Students engineer new projects in class assignments
- Adults: prototypes for small business products with laser cutters & 3D printers

– A Librarians Guide to Makerspaces

Makers

How do makers make?

- Use “open source electronics platforms, 3D printing technology, & community makerspaces with sophisticated industrial tools.”

– *Maker Cities website, creators of Maker Cities online game*

- Range “from food to crafts to technology.”

– *What is the Maker Movement & Why Should You Care*

Makers

How do they make?

Using high-tech equipment:

1. Industrial-grade fabrication & electronics tools
2. Laser cutters that make 2D & 3D structures
3. Sign cutters that plot in copper to make antennas & flex circuits
4. High-resolution milling machines that make circuit boards & precision parts

Makers

How do they make?

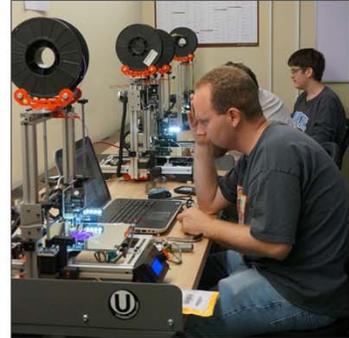
Using traditional equipment:

1. Large wood routers for building furniture & housing
2. Electronic components & programming tools
3. Plastics & electronics labs
4. A machine shop, woodshop, &/or metalworking shop
5. A textiles department
6. Welding stations
7. Work tables

Makers

Where do makers make?

- Makers work in “makerspaces” that provide tools & space in a community environment:
 - Libraries
 - Community centers
 - Private organizations
 - School campuses
- Expert advisors may be available, but often novices get help from other users.



<http://www.opensourceclassroom.com/maker-space-home/>

Makerspaces

What is a makerspace?

“...a physical location where people gather to share resources & knowledge, work on projects, network, & build.”

– 7 Things You Should Know About Makerspaces



<http://www.libraryincubatorproject.org/?p=15979>
Library Makerspace

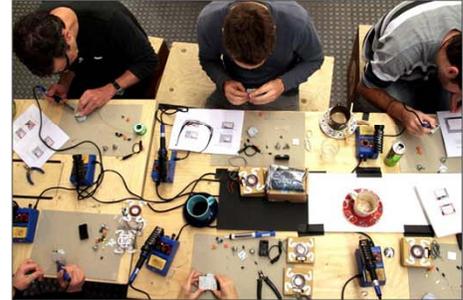
Makerspaces

What is a makerspace?

“...a community-operated physical space where people with common interests, often in computers, technology, science, digital art or electronic art, can meet, socialize, and/or collaborate”

– Wikipedia

Makers at work

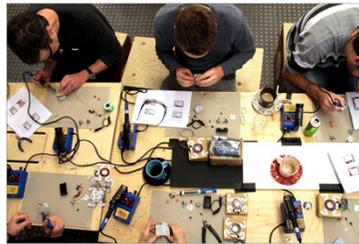


<http://www.pslk.com/2014/08/maker-movement-trends.html>

Makerspaces

Kinds of makerspaces

- Some facilities are math & science-based; some include the arts:
 - Educational realm: S.T.E.M.
 - Science, Technology, Engineering, Math
 - Private-sector realm: S.T.E.A.M.
 - Science, Technology, Engineering, Arts, Math



<http://www.psfk.com/2014/08/maker-movement-trends.html>

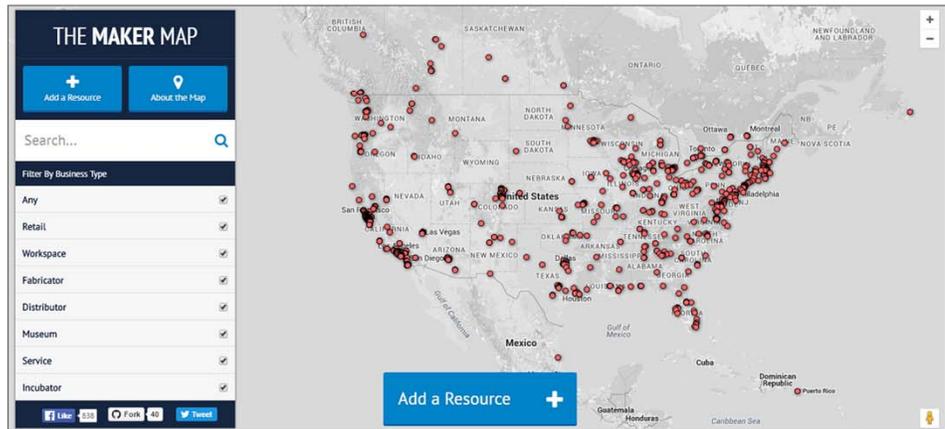


<http://blogs.mercurynews.com/entertainment/tag/maker-faire/>

Makers

In what kinds of locales are makers located?

- Makership occurs in all regions of the US, though currently concentrated in highly populated areas.
- VCU looking for good rural/small town examples



Makers

What makerspace challenges do makers face?

- High membership fees
- No opportunity to work with members of the community, peers, or potential employers
- No skillset paths & only offer basic operations offered
- In some makerspaces, a lot of rules & regulations

Artisans

What is an artisan?

- Skilled at making things by hand
- Practices a trade or handicraft
- Produces something in limited quantities often using traditional methods

– Merriam-Webster Dictionary



<https://touringflorence.com/visit-the-artisans/>



<https://en.wikipedia.org/wiki/Artisan>



http://www.artisansofthevalley.com/cb_es_profile1.shtml

Artisans

Artisan industries include:

- Hand-made crafts:
 - Stationary
 - Jewelry
- Foods:
 - Bakeries
 - Butcheries
 - Restaurants
 - Food Trucks
- Beverages:
 - Coffee
 - Beer
 - Ciders
 - Wines
 - Spirits



All photos provided by artisans or taken by VCU student

Artisans

Artisan industries include:

- Bikes
- Clothing
- Hair
 - Barbershops
 - Salons
- Metal crafts
- Wood crafts
- Independent media:
 - Digital media
 - Music
 - Books
- Sign painting & murals



All photos provided by artisans or taken by VCU student

Artisans

Why do artisans create?

- Passion for their craft
- Entrepreneurial spirit
- Family trade
- Personal interest
- Dissatisfaction with previous career
- Desire to make something
- Self-taught or apprenticed



<http://www.cbsnews.com/news/new-york-man-builds-special-furniture-for-special-children/>



http://articles.philly.com/2015-08-26/news/65852017_1_pope-francis-chair-fellow-inmates

Artisans

Where do artisans locate?

Artisans can work in smaller spaces than makers:

- Small buildings downtown
- Second story of a small building
- Work from home
- Share co-working space
- Industrial areas
- Neighborhood Commercial Districts

Artisans

Co-Working Spaces:

- Offer option for more affordable space
- Shared, communal setting
- Provide different types of workspaces
- Membership-based workspaces for diverse group of users

Artisan Challenges

What challenges do artisans face?

Artisans need assistance with:

- Business Development: Marketing, hiring & retention, online sales, & financing
- Financing: Capital, financial advising, access to grants
- Space: Dedicated work space, shared work space, expanded work space
- Government: Help with regulations & navigating the system; help knowing what assistance is out there

Makers & Artisans

How do we help them thrive on or near Main Streets?

- Provide institutional support
- Provide/attract makerspaces for makers:
 - Private sector (TechShops, Vocademy)
 - Public sector (Libraries, Colleges, FabLabs)
- Provide assistance with finding resources
- Provide assistance finding space:
 - Vacant buildings
 - Industrial spaces
 - Neighborhood Commercial districts

Makers & Artisans

Create Partnerships with Institutions that can Provide Support

- Partnerships leverage strengths of both parties, providing space & guidance
- Institutions bolster the learning process
- Provide opportunity to work among peers or community members.

Family Maker Night at Digital Harbor Foundation in Maryland



<http://technical.ly/organization/digital-harbor-foundation/>

Makers & Artisans

Create Partnerships with Institutions that can Provide Support

- Institutions support makers & artisans by:
 - Teaching trades to & providing space for makers
 - Increasing business acumen of artisans
- Types of Institutions that offer support:
 - Community Colleges
 - 4-Year Colleges
 - Libraries
 - YMCAs

Makers & Artisans

Institutional Support in Cleveland, OH: Cuyahoga Community College (CCC) Makerspace

- CCC's Youth Technology Academy offers high school students:
 - After school & weekend tech education
 - Maker-mentors
 - Summer employment opportunities

- Focus is tech-based:
 - Electrical engineering
 - Robotics
 - Manufacturing

Teen working at CCC's Youth Technology Academy



http://www.cleveland.com/metro/index.ssf/2015/04/tri-c_youth_technology_academy.html

Makers & Artisans

Cleveland, OH

Cuyahoga Community College (CCC) Makerspace

- CCC's Youth Technology Academy participated in Robotics Competition & won First place
 - 20,000 participants
 - First Ohio team to win the competition
 - 40,000 spectators



<https://au.pinterest.com/explore/first-robotics-competition/>

Makers & Artisans

Possible Partnerships

1. Industry partners: Companies that can benefit from the makers created in the community
2. Educational partners: Schools & universities can provide teachers for makerspaces or can create their own makerspaces to help make better students
3. Economic Development Department: Working with municipalities can create an additional support system and educate the department to artisan/maker needs
4. Investors & Sponsors: They can provide financial assistance and/or space

Makers & Artisans

Partnership in Pennsylvania Elizabeth Forward FabLab

- Created initiative that started with middle school kids & continued through high school
- Blended art, computer science, & education
- Students participate the design process (prototypes & using design software) & actual making

Elizabeth Forward's Dream Factory



<https://www.edsurge.com/news/2015-03-05-from-drab-to-fablab-how-one-district-trains-kids-on-21st-century-skills>

Makers & Artisans

Partnership in Pennsylvania Elizabeth Forward FabLab

- Contacted *Makeshop* to teach one of their summer enrichment classes
- Students learned 3D modeling & printing & physical computing

Summer Enrichment Class at Elizabeth Forward Dream Academy



<http://makeshopgh.com/2013/07/26/field-trip-elizabeth-forward/>

Attracting makers & artisans

Providing space for makers

- **Public-sector:**

- Library Makerspaces
- Fab Labs

Library Makerspace



<http://365cincinnati.com/kid-friendly/makerspace-cincinnati-library>

Fab Lab



<http://fablabasia.net/what-is-fablab/>

- **Private-sector:**

- TechShops
- Vocademy
- Private company makerspaces

TechShop



<http://adigaskell.org/2014/11/11/how-tech-shop-is-bringing-the-sharing-economy-to-manufacturing/>

Private Company Makerspace



<http://www.tedmag.com/news/manufacture-news/GE-and-Imagine-Nation-Unveil-a-First-of-its-Kind-Makerspace.aspx>

- **Maker Faires**

Types of Makerspaces: Libraries



Library makerspace in Minneapolis, MN



<https://www.pinterest.com/archspiration/library/>

Library makerspace in Madison, WI



http://www.spacesaver.com/markets/library-shelving-solutions/public-library-shelving/library-makerspace/?utm_referrer=https%3A%2F%2Fwww.google.com%2F

Library makerspaces can be grand & exciting...

Library Makerspace in Farmington, CT



<http://farmingtonlibraries.org/the-maker-space/>

Makerspace in Omaha, NE



<http://makered.org/maker-corps-at-the-omaha-childrens-museum/>

Library makerspace, Kansas City, MO



<http://kcur.org/post/what-people-are-3-d-printing-johnson-county-public-library#stream/0>

Types of Makerspaces: Libraries



Library makerspace in Madison, WI



<http://twimakerspace.blogspot.com/2015/03/maker-madness-set-design-and-drum-circle.html>

Elementary School Library Makerspace



<https://www2.k12albemarle.org/dept/instruction/design-2015/Pages/Space-Transformations.aspx>

...or they can be simple & small

Library Makerspace - Workbench



<http://fitzkits.com/photo-gallery/>

Library Makerspace



<https://www.pinterest.com/glendapierce/makerspace-how-to/>

Library Makerspace



<http://slworkshop.net/2014/11/makerspaces/>

Makerspace Challenges

Challenges Makerspaces Face: Libraries

- Limited in types of equipment they can offer
 - Fumes, dust, & noise restrictions
- Limited hours
- Limited space
- Limited number of machines

– Vocademy



Types of Makerspaces: FabLabs



What is a FabLab?

- Each facility is a member of Fab Foundation Charter
- Fab Foundation is a non-profit organization
- Fab Labs typically focus on 5 core digital fabrication technologies:
 1. CNC routing
 2. Laser cutting
 3. Vinyl cutting
 4. 3D printing
 5. Circuit board fabrication

**Types of
Makerspaces:
FabLabs**



To qualify as a Fab Lab, facility must meet 4 criteria:

1. Public access is required
2. Support & subscribe to the Fab Lab Charter
3. Share a common set of tools & processes.
4. Participate in the larger, global Fab Lab network



<http://m.jsonline.com/multimedia/fox-valley-fab-lab-spawns-inventions-b99484317z1-300613211.html>



<https://sites.google.com/a/threelakesd.k12.wi.us/fab-lab-three-lakes/home/photo-gallery>

Makerspace Challenges

Challenges Makerspaces Face: FabLabs

- Funding:
 - High start-up costs due to specialized equipment
 - National Science Foundation grant of \$14 million helped FabLab get started its first year
 - NSF funding didn't extend beyond the first year

– Makerspace: Towards a New Civic Infrastructure



Makerspace Challenges

Challenges Makerspaces Face: FabLabs

- Many driven to partner with institutions that provide staff or operational support by folding lab into existing educational programming
 - Universities
 - Community colleges
 - High schools

– *Makerspace: Towards a New Civic Infrastructure*



Types of Makerspaces: TechShops



What is a TechShop?

- Private-sector business with franchise approach
- Usually located in relatively upscale areas
- Members have unlimited access to professional-grade equipment, software, & space within facility



<http://www.techshop.ws/tssf.html>



<https://gigaom.com/2013/12/06/making-a-maker-checking-off-the-holiday-shopping-list-with-a-diy-chess-set/>

**Types of
Makerspaces:
TechShops**



- Branches feature workshops with retail space
 - Drone kits, welding rods, t-shirts, maker books, etc.
- Memberships range from \$150 to \$200 per month
 - Required “safety & basic usage” classes for equipment add several hundred dollars in fees to the cost of a basic membership

Types of Makerspaces: TechShops



- Each facility includes:
 - Laser cutters
 - Plastics & electronics labs
 - A machine shop
 - A woodshop
 - A metalworking shop
 - A textiles department
 - Welding stations



<http://coloradomakerhub.org/maker-news/is-it-a-hackerspace-makerspace-techshop-or-fablab/>

Makerspace Challenges

Challenges Makerspaces Face: TechShops

- Each branch needs to sign up 330 members minimum every year to break even
- The company seems to be pushing the limits of scalability
- According to Yelp & Google, users think the monthly membership rates are too steep & resent the extra costs of the safety & usage classes

– *Makerspace: Towards a New Civic Infrastructure*



Makerspace Challenges

Challenges Makerspaces Face: TechShops

- Enrollments have remained flat; some branches have failed outright.
- In response, new locations now operate in partnership with local institutions
 - The partners:
 - Contribute to the build-out of the facilities
 - Subsidize daily operations by buying memberships for distribution to employees, students, or veterans.

– *Makerspace: Towards a New Civic Infrastructure*



Another Makerspace Model



What is Vocademy?

- Education-based vs. access-based
- Membership required for access to facility and equipment, but not required to take classes



<http://www.vocademy.com/about/>



<http://drscifi.com/blog/troop-9-vocademy-inland-empire-mini-maker-faire>

Another Makerspace Model



VOCADEMY

What is Vocademy?

- Private business model
- Classes step up from beginner to advanced
- Members gain skills need for jobs
- Can also “rent-a-pro” & pay them to do making projects for you



<http://www.vocademy.com/new-laser-cutting-engraving-classes-coming-soon/>

Makerspace
Showcase:
Maker Faire

Maker Faire®

“...part science fair, part county fair, & part something entirely new...it’s a family-friendly showcase of invention, creativity, & resourcefulness.”

– www.makerfaire.com



<http://www.wired.com/2010/05/maker-faire-2010/>

Makerspace
Showcase:
Maker Faire

Maker Faire®

According to Maker Faire website:

- Faire gathers together tech enthusiasts, crafters, educators, tinkerers, food artisans, hobbyists, engineers, science clubs, artists, students, & commercial exhibitors.
- Makers come to show creations & share learnings.
- Attendees flock to Maker Faire for inspiration

Makerspace
Showcase:
Maker Faire

Maker Faire®

Outdoor Maker Faires

Maker Faire in Large Parking Lot or Closed Street



<http://www.wired.com/2012/09/maker-faire-pdx/>

Maker Faire held in large park



http://www.radiation-watch.org/2013_09_01_archive.html

Maker Faire using booths



<http://makerfairerockin.com/>

Makerspace
Showcase:
Maker Faire

Maker Faire®

Indoor Maker Faires

Maker Faire in a Convention Center



<http://www.redicubricks.com/highlights-from-mini-makerfaire-toronto/>

Maker Faire in a gymnasium



<http://www.peconiccommunityschool.org/pcs-in-action/2016/3/14/pcs-maker-fa>

Maker Faire in a vacant, rehabilitated building



<https://makerairehamilton.com/hamiltons-first-maker-faire-held-at-hamilton-steam-and-technology-museum-8/>

Overcoming Makerspace Challenges

To serve makers well, *makerspaces* should:

1. Offer traditional & advanced fabrication tools at affordable prices
2. Provide for assembly in addition to fabrication
3. Offer wrap-around business services
4. Develop maker education
5. Help build a sustainable market for goods & services

Overcoming Artisanal Challenges

To thrive, *artisans* need help with:

1. Finding resources for business development
2. Access to capital or grants
3. Finding space in which to expand or work
 - a. Co-working space
 - b. Larger space
 - c. Dedicated, specific needs
 - d. Incubator space & services
4. Navigating government regulations

**How can your
Main Street
Benefit?**

Identify makers & artisans:

- Standard information sources (Google, etc.)
- Word-of-mouth – artisans know each other & can refer you to others in their industry segment
- Search at local shops –artisans might have partnerships with store owners to sell their goods
- Attend festivals & fairs in which artisans might participate

**How can your
Main Street
Benefit?**

Find spaces:

1. Look for spaces that meet their needs

a. Makers:

- i. Libraries or community centers
- ii. School campuses
- iii. Vacant buildings

b. Artisans:

- i. Co-working spaces
- ii. Vacant buildings in or near
neighborhood commercial districts
- iii. Second floors

How can your Main Street Benefit?

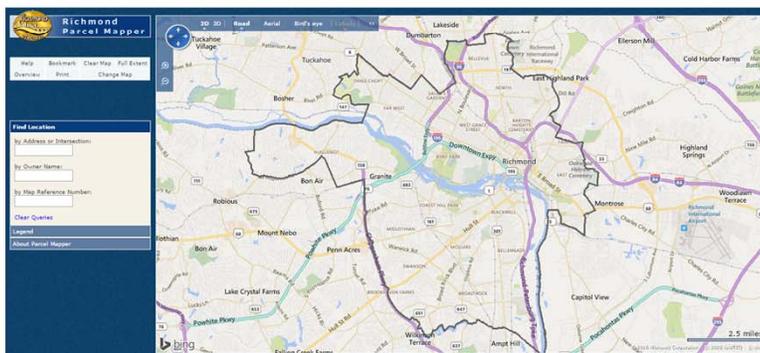
Find spaces:

2. Local municipality can help:

- a. Online search tools
- b. Locating key developers



City of Richmond Parcel Mapper tool



<http://map.richmondgov.com/Parcel/>

How can your
Main Street
Benefit?

Study the Market:

1. Perform a Market Analysis

- a. Is there a market for the space?
 - i. Are makers & artisans interested in it?
- b. Is there a demand for their goods?
 - i. Is it local demand?
 - ii. Non-local?
 - iii. Or not yet articulated?

2. Commission a regional institution to help with:

- a. Market feasibility
- b. Product feasibility

How can your
Main Street
Benefit?

Check Regulations & Attitudes:

1. Is this use allowed?
2. Local municipality can help with:
 - a. Zoning issues
 - b. Resident opinions



Photo courtesy of VCU, Studio I focus group

**How can your
Main Street
Benefit?**

Identify partnership opportunities:

1. Identify potential partners
2. Identify why the institution would make a good partner – what would they bring to the business relationship?
3. What institutions are out there? What do they offer?
4. Are there similar entities that could form a partnership to share resources?

How can your
Main Street
Benefit?

Find operators, partners, & developers:

1. Choose a business model
 - a. For-profit (membership-based models)
 - a) TechShop business model
 - b) Vocademy business model
 - b. Non-profit
 - a) Become a Fab Lab Charter member
 - b) Start a Community Center or Library makerspace

How can your
Main Street
Benefit?

Find sources of support:

1. Funding
 - a. Grants
 - b. Sponsorships/partnerships

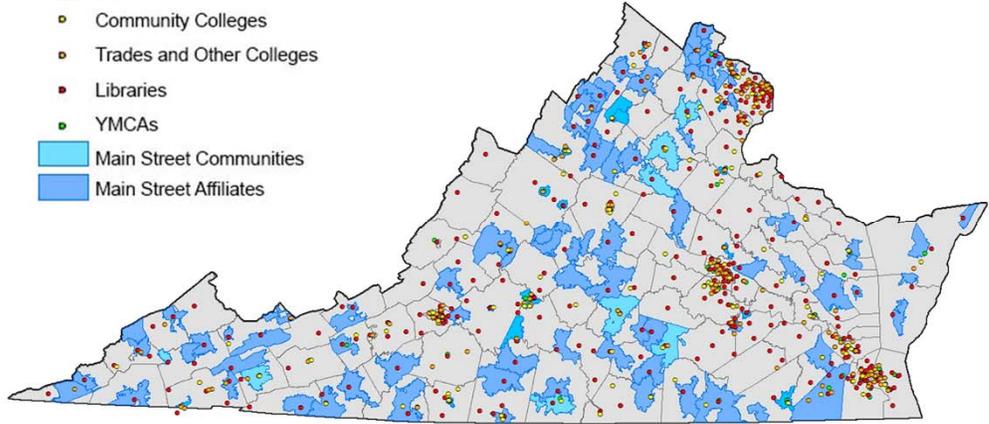
2. Institutional – Virginia Institutions in proximity to Main Street:
 - a. Libraries
 - b. Community Colleges
 - c. Trade Schools & 4-Year Colleges
 - d. YMCAs

Institutional Support

Map of Institutions in Virginia

Legend

- Community Colleges
- Trades and Other Colleges
- Libraries
- YMCA's
- Main Street Communities
- Main Street Affiliates



0 20 40 80 120 160 Miles

Note: Not all-inclusive



Institutional Support

Legend

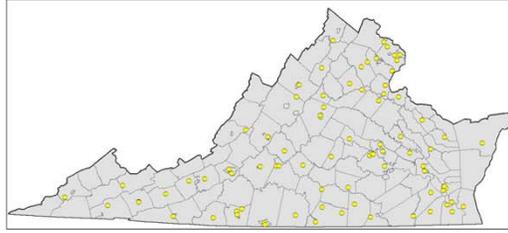
- Community Colleges
- Trades and Other Colleges
- Libraries
- YMCAs

0 20 40 80 120 160 Miles

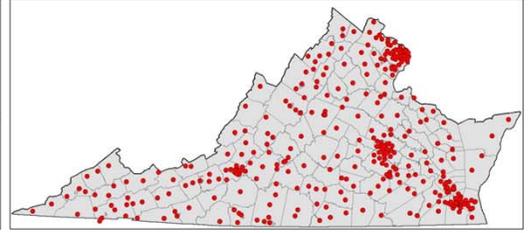


Map of Institutions in Virginia

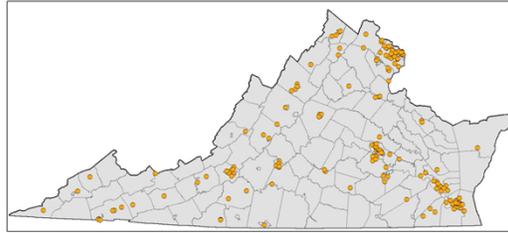
Community Colleges



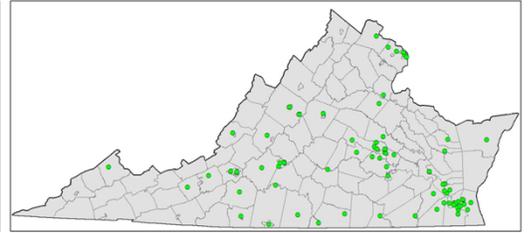
Libraries



Trade Schools & 4-Year Colleges



YMCAs



Institutional Support

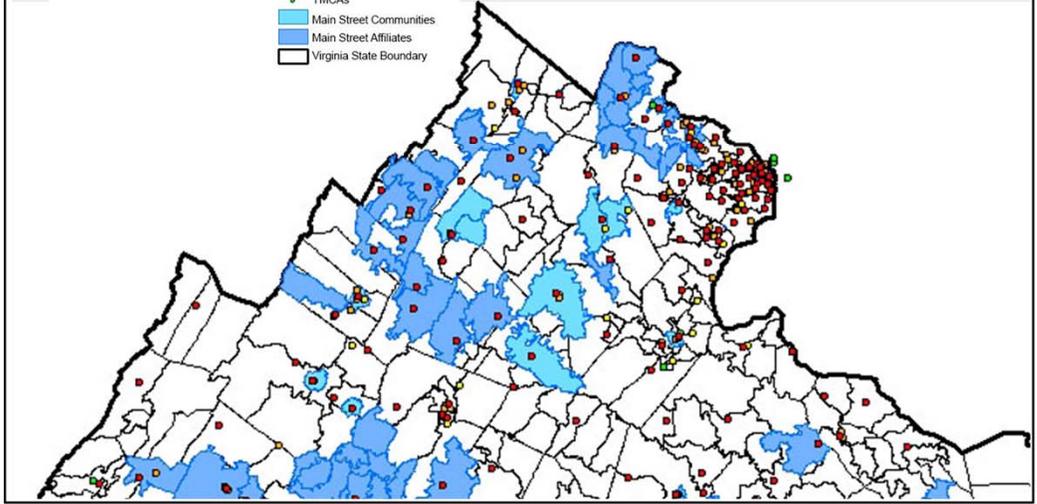
Northern Virginia Institution Locations

0 10 20 40 60 80 Miles



Legend

- Community Colleges
- Trades and Other Colleges
- Libraries
- YMCAs
- Main Street Communities
- Main Street Affiliates
- Virginia State Boundary



Institutional Support

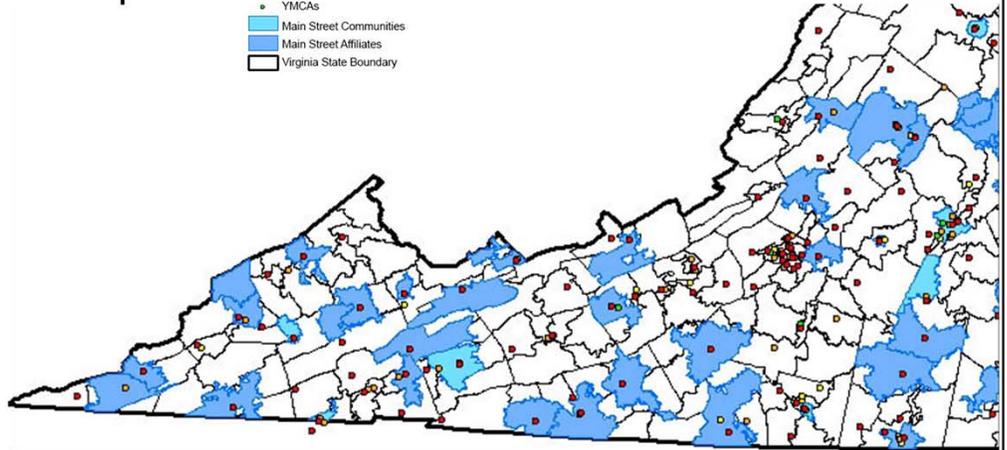
Southwestern Virginia Institution Locations

0 10 20 40 60 80 Miles



Legend

- Community Colleges
- Trades and Other Colleges
- Libraries
- YMCAs
- Main Street Communities
- Main Street Affiliates
- Virginia State Boundary



Thank you!