

Introduction: Subclass Evaluation

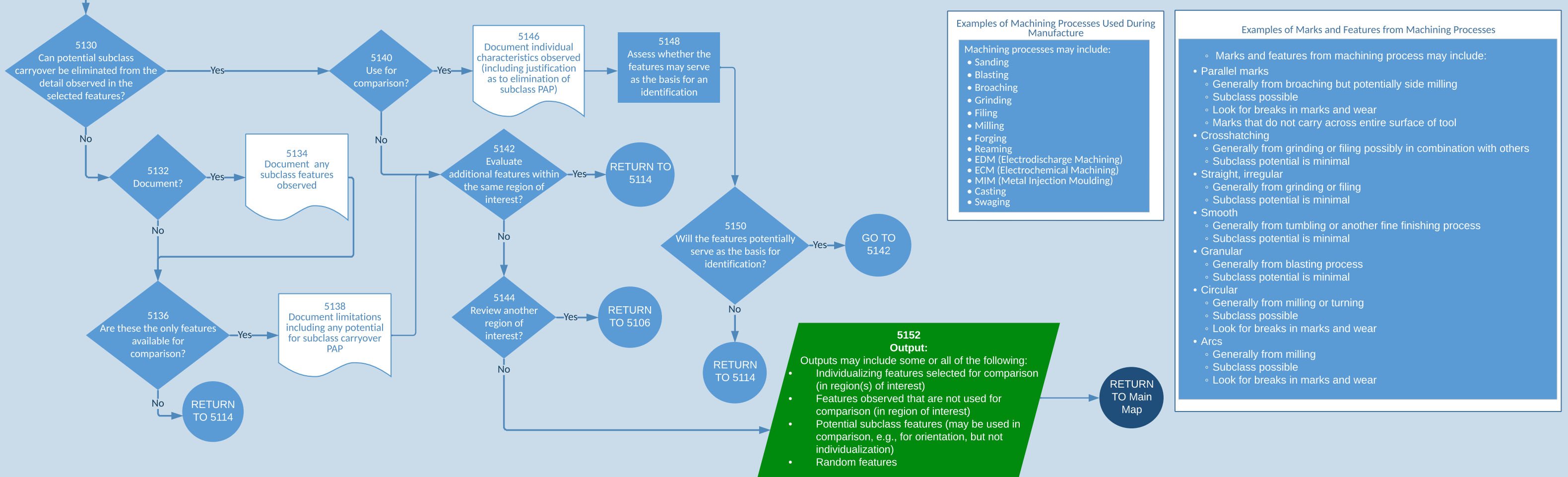
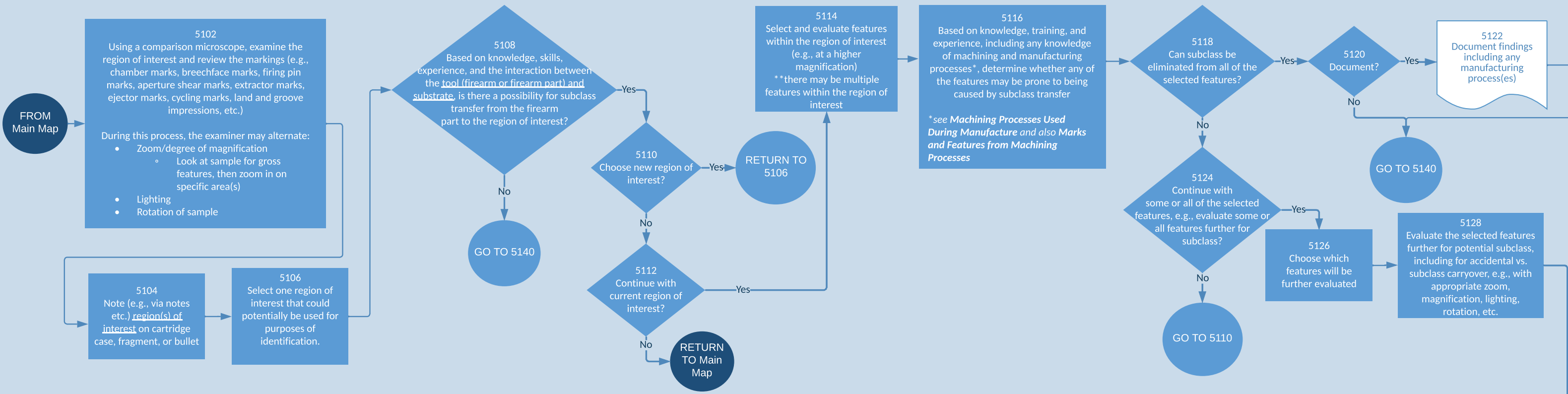
The National Institute of Standards and Technology (NIST) facilitated the development of the initial Firearms Process Map ([which can be accessed via NIST and OSAC process mapping websites](#)) through a collaboration between the NIST Forensic Science Research Program and the NIST administered Organization of Scientific Area Committees (OSAC) for Forensic Sciences (specifically OSAC's Firearms and Toolmarks Subcommittee) in partnership with the Association of Firearm and Tool Mark Examiners (AFTE).

The scope of the initial Firearms Process map was limited to core processes within the discipline of firearm and toolmark examination such as the examination of firearms and the microscopic comparison of fired ammunition components. Several topics were omitted from the map including individual characteristic databases, toolmark examination, fracture matching and distance determination.

Some of these topics, however, such as this Subclass Evaluation process map were subsequently addressed by the process mapping team through additional efforts sponsored by AFTE, and are published and referenced on the NIST process mapping Website .



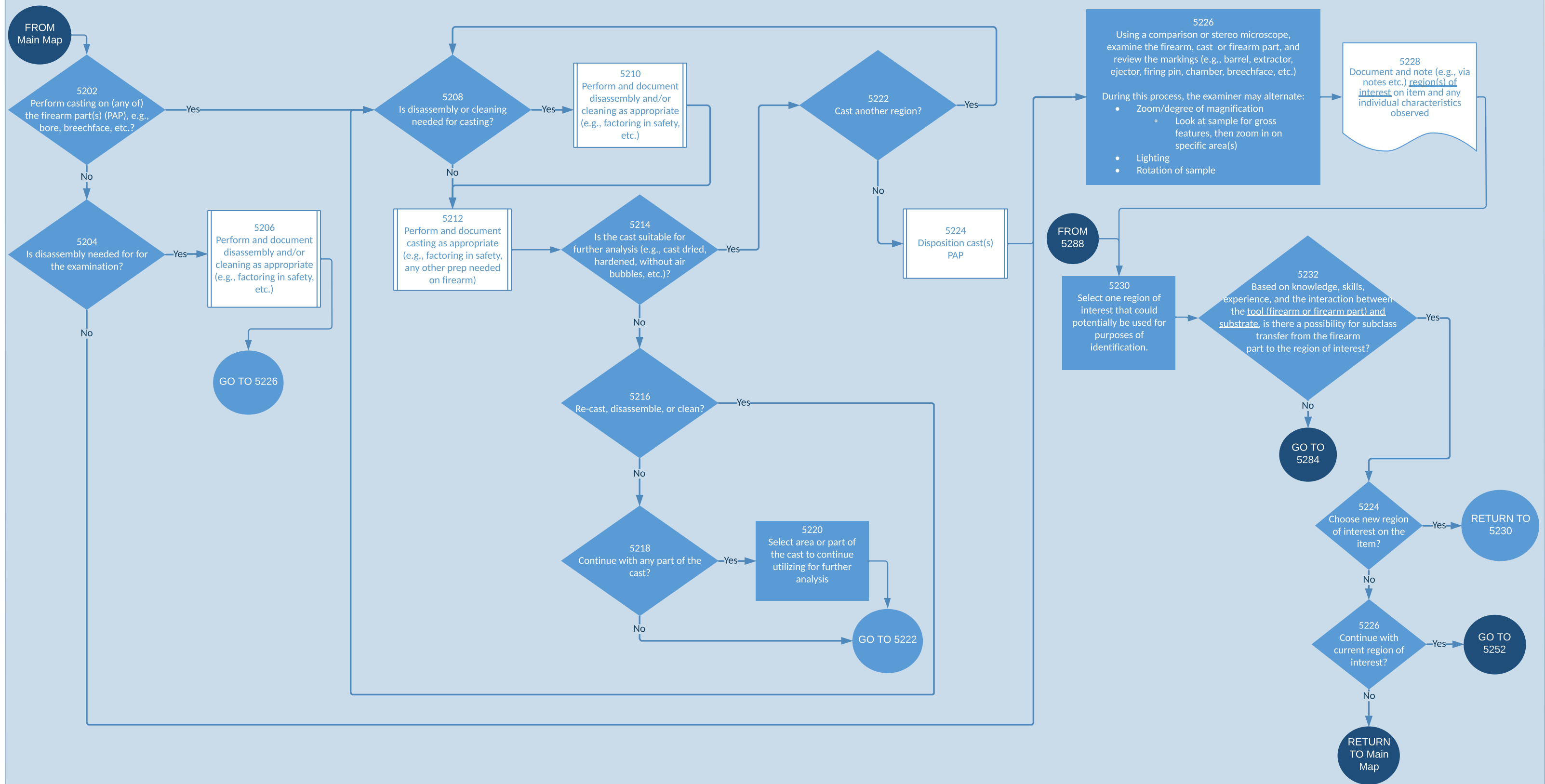
5100 - Subclass Evaluation: Toolmarks



- Examples of Machining Processes Used During Manufacture**
- Machining processes may include:
- Sanding
 - Blasting
 - Broaching
 - Grinding
 - Filing
 - Milling
 - Forging
 - Reaming
 - EDM (Electrodischarge Machining)
 - ECM (Electrochemical Machining)
 - MIM (Metal Injection Moulding)
 - Casting
 - Swaging

- Examples of Marks and Features from Machining Processes**
- Marks and features from machining process may include:
 - Parallel marks
 - Generally from broaching but potentially side milling
 - Subclass possible
 - Look for breaks in marks and wear
 - Marks that do not carry across entire surface of tool
 - Crosshatching
 - Generally from grinding or filing possibly in combination with others
 - Subclass potential is minimal
 - Straight, irregular
 - Generally from grinding or filing
 - Subclass potential is minimal
 - Smooth
 - Generally from tumbling or another fine finishing process
 - Subclass potential is minimal
 - Granular
 - Generally from blasting process
 - Subclass potential is minimal
 - Circular
 - Generally from milling or turning
 - Subclass possible
 - Look for breaks in marks and wear
 - Arcs
 - Generally from milling
 - Subclass possible
 - Look for breaks in marks and wear

5200 - Subclass Evaluation: Tool (Firearm) - 1 of 2



5250 - Subclass Evaluation: Tool (Firearm) - 2 of 2

